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D. K. MINOR, Proprietor.] FOR AUGUST, 1834. [SAMUEL FLEET, Editor.

ORIGINAL COMMUNICATIONS.

Uncultivated and consequently Unhealthy Condition of New-York, or Manhattan Island. By the Editor.

It is known to most of our readers that the island, on which stands the city of New-York, is near fifteen miles in length, with a medial breadth of one and a half miles, and contains about 13,920 acres. The soil is principally sandy and gravelly loam, resting on granite or gneiss rock, which in many places rises to and above the surface of the soil, characterising the features of the island as rocky, uneven, and diversified. In the northern part of the island, there is abundance of granular and primitive limestone. The city occupies the southern point, and extends compactly about three miles; beyond which, the island is laid out into avenues leading lengthwise, and into streets crossing them at right angles. Three or four of the former, and a portion of the latter are opened, graded, and in part McAdamised or paved. Most persons would have the impression that the whole island, beyond the precincts of the city, was in a high state of cultivation; but this is very far from the fact. Comparatively a very small portion is in a tolerable state of culture, and the remainder either lies out at commons, or is covered with stagnant water, with moss, coarse swampy grass, and stinted brush wood. Here and there, all over the island, are pieces of fine woods, of beautiful and thriftily growing timber. These last, however, are decreasing; when the wood is cut off, the ground in many instances is not even inclosed, and consequently the young sprouts are destroyed by cattle. The fencing is of board, rail, and stone, much of which is temporary and rough. The ground occupied by market gardeners is, of course, well enriched with manure, but generally the fences, dwellings, and out-houses, have a very uninviting appearance. The country seats along the margin of the rivers have a beautiful appearance from the water; and some of them are under excellent culture, and in fine order.

We shall now first point out the causes of the forbidding and uncultivated state of the island, and then the consequences, particularly in reference to health, to the value of property, and to the prosperity of the city.

A considerable portion of the land beyond the densely settled part of the city is owned by families of ancient settlers, who are either engaged in business in the city, or are minors, and consequently it is either left wholly unimproved, or but very partially cultivated. A very large portion, too, by persons engaged in city pursuits, whose expectations of a profitable investment rest wholly on the future increased value. The idea of getting even a part of the interest of their money from cultivation, does not enter their heads. In expectation that the city will spread over the island in a day, and that the price of land will rapidly rise, they are unwilling to give gardeners favorable leases, and sufficiently long to enable them to render their labor and capital profitable. In consequence, the land is either left uncultivated, occupied in temporary culture, or is let to milkmen for its scanty grass. Those who are desirous of improving their grounds find, in many instances, that they must be to the expense of all the fence, and that it is impossible to drain their lands, as long as their neighbors are unwilling to incur any expenses for similar purposes. This want of general improvement results in the temporary occupancy of much of the land by a class of people, who, not only have no taste for improvement themselves, but check it in others, by resorting to their fences for fuel. Another practice growing out of this state of things, is that both rich and poor depend on the streets and commons for pasturing their cows during a great part of the grass season. And it is, we suppose, almost needless to say that public pounds are numerous, that every little neighborhood has its officers to assess the damages of unruly cows, and that petty jarrings and altercations take place between families. We will illustrate the gain of this street pasturing. It takes one person, perhaps a hired man, at least one fourth of his time to find the cow; once or twice a week he returns, at 9 or 10 o'clock at night, tired and vexed at his vain search; once or twice a month fifty cents, or a dollar, or more, is paid for damages; and as many times in the course of a few years, some one makes beef of her, or she is driven away to Bull's Head, and never heard of afterwards.

Those who duly estimate the effects of the above causes can easily account for the neglected and forbidding appearance of the island: but there is one cause, which is a consequence of those already enumerated, that serves more than all others to retard improvements. It is the unhealthiness of the greater portion of the island out of the city. This is caused by the marshes, and stagnant and undrained waters. On account of the rocky substratum, excessive rains, in the absence of all artificial drainage, have no way of escape except by evaporation. It is not uncommon to find wet marshy sandy soil, on side hills of considerable declivities. Perhaps nine tenths of those who leave the city, to reside on the island, are more or less afflicted with fever-ague and others peculiar to a wet uncultivated soil; and very few of those who have always resided in those parts of the island escape fevers. The consequence is that comparatively few of the wealthy, enterprising, and those having rural taste, remain longer than one or two seasons, and then return to the city.

The effect of all this is to dampen the spirit for horticultural improvements, to make property less valuable, and to cause the growth of the city to be much less rapid than it otherwise would be. It has turned the spirit of speculation and improvements in other directions. Had the corporation of the city, some ten or twenty years ago, compelled every owner of land to have had it properly drained, the whole island would now be a garden, presenting a most varied and picturesque rural scene; or had the New-York Horticultural Society, since its organization, been more under the control of scientific men of enlarged views, and instead of confining its attention exclusively to two dollar premiums on cabbages and roses, had annually given a premium of one or two hundred dollars for the best and most properly cultivated ground on the island, they would ere this have clothed it in beauty and made it the abode of health and delight; not only such would have been the effects, but the millions of money which the prosperity of our city is appropriating to the rapid enlargement of Brooklyn, would have been expended in extending our own bounds, and in throwing a weight of interest in the upper part of the island, that would probably have induced the general government to have made a more eligible selection for a permanent navy yard.

Even now, it is by no means too late for the spade and the plough, to exhibit their marvellous potency in beautifying our lovely island, and rendering it pre-eminently healthful. The lines and levels of our future streets and avenues are all known, consequently it can easily be known where permanent and where only temporary improvements can be made. And who can tell, some ten or fifty years hence, how much a vine that will annually produce its two and three thousand bunches of choice grapes, will add to the value of a lot? Who can estimate the price of a towering and far spreading oak, standing in the middle of a block, and serving as a monument of the industry and public spirit of a worthy ancestor? Ah, ye despisers of the rural art, happy would it be for you, for your children, and for your city, if you had a more correct and exalted view of its bounties and blessings!

We will conclude these remarks by recommending to the holders of property, and particularly to the corporation of the city, a careful perusal and consideration of the following brief extracts from three lectures on the origin and properties of malaria and marsh miasma, by Prof. Magill, of the University of Virginia.

"None of all the many 'ills which flesh is heir to' has probably been so prolific of destruction and misery to the race of man-

kind as miasmatic exhalation.* In all quarters of the world, except the frigid and ice-bound north, where perpetual winter 'rules the year,' this scourge of humanity has been occasionally found breathing disease and death upon all within the range of its morbific influence. In the east and in the west, its withering and desolating effects have been felt in all their terrific severity.† Along the classic shores of the Mediterranean it has poured with a liberal hand the 'vials of its wrath.' The shores of Africa, that region of mental darkness, though harmless to the natives, are fraught with the seeds of disease to the European and American constitution. The extensive marshes of the Netherlands have often proved the sources of severe and wide-spread disease.‡ Our own highly favored land, almost throughout its entire extent, has frequently been visited by extensive and malignant epidemics, increasing in frequency and severity as we proceed southward. The bold and majestic rivers which flow through our country, and beautify its scenery, often prove the source of destructive epidemics. The 'king of rivers,' the grand and magnificent Mississippi, like the Nile of Egypt, and the Ganges of the east, while it fertilizes the soil by its extensive annual inundations, spreads at the same time far and wide the seeds of disease."

"We have already mentioned that four things are necessary to the developement of malaria; namely, heat, moisture, vegetable matter, and the contact of air: if any one of these requisites be absent, malaria is not produced. From this fact then we may deduce many of our preventive means; for by removing any one of them, we arrest the exhalation of this gas.

"Vegetable matter, with the co-operation of heat and moisture, will every-where produce disease, hence the great necessity of enforcing the utmost cleanliness in all large cities and towns, particularly the removal of all collections of vegetable matter. The streets, yards, cellars, ponds, gardens, stores, &c., should all be made to pass through the most rigid inspection. Much good has resulted from following this course, and dreadful distress has been occasioned by neglecting it. Dr. Rush observes, 'in a manuscript of the life of doctor (afterwards governor) Colden, of New-York, there is the following fact: It was first communicated to the public in the daily Gazette of the capital of that state, on the 30th of October, 1799.' 'A malignant fever having raged with exceeding violence for two summers successively in the city of New-York, about forty years ago, he communicated his thoughts to the public on the most probable cause of the calamity; he published a little treatise on the occasion, in which he collected the sentiments of the best authority, on the bad effects of *stagnating waters, moist air, damp cellars, filthy stores,* and *dirty streets.* He showed how much these nuisances prevailed in many parts of the city, and pointed out the remedies. The corporation of the city voted him their thanks, adopted his reasoning, and established a plan for draining and cleaning the city, which was attended with the most happy effects."

"The United Provinces of Holland, (says Rush,) hold their exemption from the plague only by the tenor of their cleanliness. In the character given by Luther of Pope Julius, he says 'he kept the streets of Rome so clean and sweet, that there were no plagues nor sickness during his time.'

"Ponds of water should never be allowed to exist in cities or towns, or even in their neighborhood. In such situations they too often become the reservoirs of offal matter of every description; which, either by gradual accumulation, may finally rise above the surface of the water, as happened in the instance related by Senac, or, by evaporation of the water, may become exposed to the action of a hot sun, and in either event may exhale miasmata in abundance.

"But as we have before observed, marshes, strictly so called, are the most fruitful sources of miasmata. These abodes of this pestiferous air, from their great extent and other circumstances, will often not admit even of any attempt to change their nature; and all that is left us in such cases, is to interpose between them and us the barriers to the progress of malaria with which nature has kindly furnished us, and which will be mentioned in a future part of this lecture.

"Though, however, in many cases no favorable change can be effected, in numerous other instances much has been done to redeem marshes from their noxious state. The experience and industry of man have often triumphed over these laboratories of malaria, and from having been shunned as the foci of disease, they have been converted into the abodes of health and plenty, by a judicious use of ditching, so as to drain the soil of its superabundant water and subsequent cultivation, by which the earth being frequently turned up to the drying action of the sun and air, wonderful changes have been effected. 'With the aid of the purifying sea breeze, this course, (says Ferguson,) at the British colony of Demarara, within six degrees of the equator, has succeeded in rendering the cultivated portion of the deepest and most extensive morass probably in the world, a healthy, beautiful, and fertile settlement.'*

"The *Campagna di Roma*, now the abode of pestilence, was once comparatively healthy, and was indebted for it in a great measure to the 'constant tillage,' and 'to the extreme attention paid to draining the deposites of stagnant water,' and to the aqueducts which then traversed it in every direction. 'These, however, being broken down and destroyed by the Goths, by which the country became overflowed, it soon became excessively sickly.'

"In the neck below Philadelphia, since it has been drained, its agues have disappeared."

"The clearing of wet land should be followed up immediately by cultivation. Land of this description, having on it a growth of timber, should never have its wood cut down without the specific purpose and power immediately to devote the soil so cleared to agricultural uses; because experience has taught that the *mere clearing* of marshy land is almost certain to be followed by disease in its neighborhood. In proof of this, Dr. Rush says, 'it has often been observed that families enjoy good health for many years in the swamps of Delaware and North Carolina, while they are in their natural state, but that sickness always follows the action of the sun upon the moist surface of the earth, after they are cleared. For this reason the cultivation of a country should always follow the cutting down of its timber, in order to prevent the new ground becoming, by its exhalations, a source of disease.'

"Dr. Robert Jackson also says, that 'in this country, (America,) the unhealthiness of a place is often obviously increased by cutting down the woods of the neighboring swamps; therefore, no rule is more liable to exceptions than that which has been so generally enforced, namely, that clearing a country of its woods invariably renders it healthy; unless the grounds be drained and cultivated as well as cleared, the effect is likely to be the reverse.'

"Many places, previously healthy, have become immediately sickly upon cutting down an intervening wood between them and the marsh; and, on the other hand, many situations before sickly have been rendered healthy from the growth of trees between them and marshy grounds. Dr. Jackson says, 'histories abound with examples of destructive epidemics, which have followed the cutting down of the groves which covered morasses or intercepted the approach of malaria."

"Dr. Lisle in his memoir on malaria, translated by Dr. Johnson, and incorporated in his work on tropical climates, says 'upon Mount Argintal, above the village of St. Stephano, there is a convent which has lost all the reputation for salubrity it once enjoyed, since the lofty trees by which it was surrounded have been cut down.'

"He also says, 'I have been informed by persons worthy of credit, that in consequence of felling the wood before Asterna, near the Pontine marshes, Veletri was visited for three successive years by disease, which made much greater havoc than usual throughout the whole country.'"

Cultivation of Tares in the United States.
By Dr. Wm. Beach. To the Editor of the Quarterly Journal of Agriculture, Mechanics, and Manufactures.

Sir: In compliance with my promise, I send you some remarks for insertion in your well conducted and valuable publication, on the cultivation of the plant not much known or raised in this country, commonly called Tares or Vetches, *the Vicia sativa of Linnæus.*

Its history and uses, as given by writers in England, together with the information I have derived from other sources, give me a very favorable opinion of it. I have unquestionable evidence that it can be grown in our climate in great perfection, and that it will prove a valuable product of our soil.

Botanical Character.—The botanical character, as given by Linnæus, is as follows: *Leguminibus, sessilibus, subbinatis, erectis foliis retusis; stipulis notatis. Lin. sp. plant,*

* It is computed that upwards of one half of the human race perish by fever (in one or other of its forms.) Miasma is the principal if not the only cause of febrile disease.

† According to the report of the committee, consisting of Dr. W. Ainslie, president, and Mr. A. Smith, and Dr. M. Christie, the fever which prevailed in the provinces of Coimbatore, Madura, Dindigul and Tinnivelly, in the years 1809, 1810 and 1811, consigned to the grave 106,789 persons, to which may be added the ruin of the constitutions of many thousands.

‡ The famous Walcheren expedition of the British in the year 1809 is still fresh in the recollection of many. Out of sixteen thousand troops, constituting the whole British force, there was on the 23d of September 9,800 prostrate with the fever.

* Phil. Journal, No. 13, p. 20.

736. *Vetch with erect pods growing by pairs and sitting close to the stalks, blunt lobes to the leaves, and spotted stipules; or common cultivated vetch, the pods containing black seeds, frequently called Tares.*

There are many species of this genus of plants, but two only are cultivated in Europe, known by the name of winter and spring Tares. These are two varieties, if not distinct species: one has a black seed, the other a white, and this difference is permanent.

These plants are annual, and perish soon after they have perfected their seeds.

[Prof. Martin has proved there is but one species of the Tare, and two varieties, the spring and winter, not very distinct.—Ed.]

Advantages of Tares.—The advantages of Tares are thus given by Sir Arthur Young, who first introduced them into England. He says "the cultivation of Tares is extending every year, in consequence of their importance becoming better understood. The author of this essay feels both pleasure and pride on having been the first person who raised them on a large scale, and publicly recommended them to the notice of agriculturists. Now, in 1821, after thirty years' experience of their utility, it would be difficult for him to say more in their favor than they deserve. But he takes leave to observe that they may be made one of the principal means of enabling the arable farmer to support as much live stock as the grazier.

"For, during the time they occupy the ground, they produce as much green food, of the best quality, per acre, as the richest grazing land; and the ground may be cleared of them in such good time (in June) as to admit of raising a clean crop of either turnips, cole, cabbages, or even potatoes, on the same soil, in the same year; or in lieu of any of these plants, if the soil be infested with couch, that may be eradicated, and the land sown with wheat in October; or even after the crop of either turnips, cole, cabbages, or potatoes, have been cultivated and removed, the same soil may be prepared, and sown with either wheat, barley, oats, or pulse. By this arrangement three valuable crops may in any place be obtained every two years.

"Tares support horses, and will make both sheep and bullocks, of every size and breed, fat; they are excellent for promoting the secretion of milk in cows, ewes, and mares; they suit every situation, and flourish on almost every variety of soil. They do not depend on any particular market, and, above all, they manure the land fit for the immediate production of turnips, or cole; whereby a succession of green crops can be kept up, that would fatten a very increased quantity of live stock, and be the means of raising, in situations the most distant from towns, an abundance of those great sources of fertility, dung and urine. A judicious rotation of tares, turnips, cole, or hardy cabbages, potatoes, clover, or sainfoin, may with perfect ease be made the means of rendering all arable land *as rich as can be desired*, and poor sheep walks, downs, and wastes, of ten times their former value.

"Tares yield a great deal of green food of a valuable kind, for the support of and fattening all sorts of live stock: horses, neat cattle, sheep, and even hogs, thrive well on them."

"It is perfectly clear," continues he, "that this crop more than repays every expense in obtaining it, by manure and the improved condition of the soil. It is also nearly equally clear, that a good crop of it yields a surplus of *seven pounds* per acre. But suppose the surplus should by any unforeseen circumstance be reduced to *six pounds*, or even to *five pounds*, it still is the production of the seasons of winter and spring—a time when, under any other system, nothing can be obtained; and it completely avoids fallow for either a year, or half a year, by which a great additional expense would unavoidably be incurred. And it may be insisted on, that the soil is in a much better condition after tares than after any fallow. Moreover, tares yield this considerable surplus as a fund to pay half a year's rent, suppose *ten shillings*, half a year's taxes, *ten shillings*, and half a year's interest of capital and clear profit, from *four to five or six pounds per acre.*

"Tares are suitable for almost every sort of soil, but for clay they are particularly so, owing to their coming to perfection in June, when they may be either eaten in cribs upon the soil, or carted from it, without fear of poaching. And after the tares are off, there is time enough to cleanse the soil, and sow it with wheat in the best possible condition, certainly in better condition than after a whole year's fallow.

"*Mr. Checkett, of Belgrave Hall, near Leicester, in* 1821, *had cultivated tares and wheat alternately for ten years, on a few acres of strong clay soil, with abundant success.*"

"Tares," says an author of an old work, entitled the Art of Husmandry, "are good strong nourishing food for cattle, and are propagated after the manner of peas sown early and ploughed in just at their time of blooming, will make the ground light and mellow, and enrich it, especially stiff clays." "Tares are of as great advantage to land as other pulse, and rather to be preferred to feed cattle with than any other thing. They need but one ploughing, and want no other manure than ploughing in of the last stubble, because they enrich the land themselves."

The real money difference, says Sinclair, which Tares have over a summer fallow, is from six to seven pounds per acre (from 30 to 35 dollars.) "Perfection in the cultivation of arable land," says Young, "consists in obtaining both tares and turnips in succession the same year." "*A succession of tares and turnips may be raised and consumed on dry land, till it is made of any desired degree of richness.*"

Cultivation.—The land for winter Tares should be prepared during the month of September, or about the same time as for winter grain, in about the same manner. If the quality of the soil is not already good, or should it be very poor, a coat of manure should be given, after which two bushels of the seeds, mixed with eight quarts of oats, should be sown to the acre, and ploughed or harrowed in the same as for field peas; they must not be buried too deep. No further cultivation is necessary.

[One and a half bushels per acre for seed, and two or three for soiling. We had winter tares sowed last fall, on Long Island, the 20th October and 14th of November. They all perished in the winter.—Ed.]

Harvesting.—As soon as the plants begin to blossom, they must be cut with a scythe, and given to stock, or when designed for manure, they must be ploughed under the same as clover.

Additional Remarks.—From the preceding remarks, the properties, cultivation, and uses of tares may be seen. I now have to add some further account of their utility and importance to the American farmer. Having read some statements of the plant in British authors, I formed a favorable opinion of it, and resolved upon sowing a small quantity by way of experiment. I accordingly purchased a few from a noted seedsman of this city, whose opinion I asked on their cultivation. He replied in substance, that they had been tried, but would not succeed; that only some English farmers, just over, attempted to raise them. I sowed them notwithstanding this discouraging statement; and altho' the ground was low, and has continued unusually wet during the season, they have arrived to a tolerable degree of perfection. I am confident that the crop would have been very luxuriant, had the soil been dry and in good order. A farmer on Long Island last year raised an excellent crop, and found them very valuable for soiling his horses. This season I understand he has extended the cultivation of them,—a sure evidence of their utility.

In conclusion, I wish to impart some further information, which, if not new to most or all of your readers, was I confess to me.

I allude to the *indigenous* or *spontaneous* growth of the genuine *Vicia sativa*, or tares, in this country. This is certainly the fact, and which I inadvertently discovered. After my plants had arrived to perfection, or blossom, I was passing through or near a meadow laid down to grass last season, when I noticed a plant which appeared precisely the same as the tares I had growing, and upon further examination, I found it was identically the same kind, the true European Vetch. I pulled some and exhibited them to the owner of the property, and another farmer, both of whom were ignorant of them.

I took a handful on board the steamboat bound for the city, and there being a cow on deck, I presented it to her, and I assure you, Mr. Editor, it was very pleasing to behold the *avidity with which she devoured* the quantity I gave her; she neither smelled or tasted, but most greedily ate all I gave. I then had confirmed in my mind all that I desired or anticipated on the subject, as relates to the growth and value of this plant.

A few days subsequent to this, I saw growing in another place in my neighborhood, near the water, a considerable quantity of tares, which exhibited unequivocal evidence of their adaptation to our soil. They were three or four feet high, and very luxuriant. I noticed some growing so close, that they completely matted together, and showed the produce to be very great, notwithstanding the want of any cultivation and the disadvantage of their growing among grass and weeds. I gathered a quantity and asked the farmer, lately from one of our Eastern States, if he knew the name of the plant? He replied that he did: he said that it was the tare spoken of in Scripture that grew among the wheat; that there was abundance in the State of Connecticut, sometimes infesting the wheat to that degree that it was very much injured. He was well acquainted with the spontaneous growth, but knew nothing of its cultivation and use. He further added that it often grew several feet high, and one variety much higher

than the other, and usually comes up in the spring. His son, who was present, stated that he had seen it come up in the fall, and grow several inches high, and he thought it would stand the winter; that they grew very rank, and so thick that it was impossible to walk through them.

Now, if they grow so well without, what might we not expect with cultivation? He further stated that he could procure for me several bushels of seed.

[Prof. Eaton considers this plant as a native of our country, but says, "perhaps it may have been introduced."—ED.]

I am forcibly impressed with the idea that the advantages of tares must be very great, not only for soiling or feeding different kinds of stock, but likewise for manure. Most farmers know the fertility imparted to the soil, by ploughing in green crops, particularly clover; but there are some objections to all kinds grown for that purpose, not excepting even clover, which is considered the best; it being a biennial, little or no benefit can be derived from it till the second year, whereas tares are fit for this purpose in a few months, and probably yield as much or more vegetable matter per acre. They completely obviate the necessity of a summer fallow for winter grain, turnips, late potatoes, cabbages, &c., in addition to the richness of the soil which they impart. Another fact worth recording, is that no vegetable draws less food from the soil; besides, they yield a considerable quantity of seed, which are valuable for sowing, poultry, &c.

I therefore recommend the cultivation of tares, or vetches, to the farmers of this country, with the conviction that they will prove a *superior, valuable, and important* crop.

Respectfully yours, W. BEACH.

East Wood Lawn, West Chester co., July, 1834.

N. B.—Seed may be had, either of American or foreign growth, of Huxley & Co. No. 81 Barclay street, New-York.

Cultivation of the Grape. By R. T. To the Editor of the New-York Farmer.

I am glad to observe you are disposed to devote some space in the columns of your useful periodical to draw the attention of the agriculturists of this country to the cultivation of the vine.

It appears this is destined to become one of the leading branches of industry that will not only richly reward the enterprising and public spirited individuals who have embarked in it, but will at the same time afford them the pleasure of knowing that they are promoting the great objects of temperance, by substituting the pure juice of the grape, a healthy beverage, sanctioned by the authority of our ablest physicians, for the "liquid poison and poisonous liquors" that are blasting the physical and mental energies, the health and happiness, of a large class of our fellow-creatures.

You will, however, find some difficulties to overcome, some prejudices to remove, growing out of the unsuccessful attempts that have been made to introduce the foreign vine instead of those which are indigenous to our own soil, before you can convince the owner of every well cultivated farm in the United States, that it would be conducive to his interests that a vineyard should occupy a portion of it.

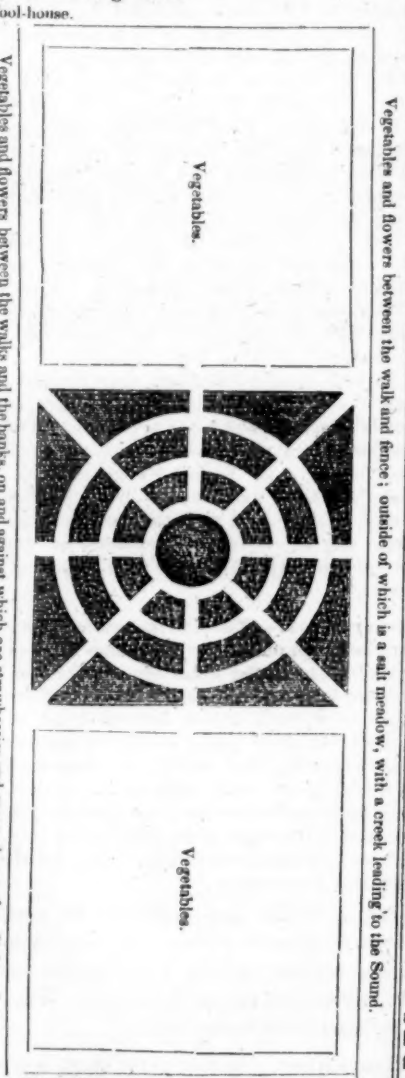
I rejoice that there is no necessity for the cultivation of foreign vines for our tables, or for the manufacture of wine, for there is now, fortunately, sufficient information on this subject to speak without the fear of contradiction, *that they cannot be profitably propagated by open culture in this climate.* We have the Isabella, Catawba, York, Madeira, and other native vines, which thrive admirably well, make excellent wine, and are good table fruit, largely cultivated in Pennsylvania, have commenced in New-Jersey, with very fair prospects, and in the southern part of the State of New-York. These will unquestionably succeed; and the more light and information you can diffuse among the agricultural portion of our population upon this interesting subject, that may well claim the patronage of every friend of temperance and national economy, the sooner will they be able to tender their acknowledgments to you, for promoting their interests, and making *them* instrumental in consummating the great temperance reformation that is taking place in this country. Yours, respectfully,

R. T.

New-York, March 31, 1834.

Visit to Throg's Neck, Westchester County, N. Y. By the EDITOR. [Continued from page 195.]

We subjoin a more correct drawing of Mr. Austin's garden.


Tool-house.
Vegetables.
Vegetables and flowers between the walk and the banks, on and against which are strawberries and grape vines—also, flights of steps.
Vegetables and flowers between the walk and fence; outside of which is a salt meadow, with a creek leading to the Sound.
Vegetables.
Fish Ponds.

One object to be secured in a pleasure garden is retirement for the family—to avoid public gaze or sudden obtrusion. But it by no means corresponds with the nature and design of a flower garden, nor with the expense bestowed on it, that the public should be excluded from even a partial view, either as they pass the road or visit the dwelling. Mr. A.'s is wholly concealed from the road and from visitors to the house; and from want of shrubbery the promenaders are liable to sudden obtrusion and full gaze. Consequently the ladies of the house can at no time appear in their easy dishabille, nor the bashful lover venture to pluck and present a significant flower. Another desideratum of this, and to all gardens at any distance from the dwelling, is a rural construction for repose, and as a reading room. We have made these remarks on Mr. Austin's place, not that we considered it an inferior one, compared with those ranking among the first in the section of the country, but simply from a belief that a more easy and natural laying out of the grounds would make it one of the most desirable residences in our country. The house is spacious and elegant, the lawn extensive and airy, and the prospect of the river, the islands, and the surrounding country, is beautiful and rich. The outhouses, into which we just peeped, are large, convenient, and in excellent order, indicating a large amount of produce from the farm.

The next place was a farm in the immediate vicinity, consisting of 48 acres, belonging to Mr. Bakewell. Full 30 acres of it were in grass, much of which would, in the estimation of the owner, produce 3 tons,—an estimation, from appearance, more than one-fourth too high. Mr. B. spoke very favorably of lucerne for soiling cows. He cuts it three or four times in the season. Gentlemen were viewing the farm when we called. They afterwards purchased it for $11,000. The land was in good order, and principally level. The house and garden were very respectable, and the former sufficiently spacious and in excellent repair. There were also many fruit trees of considerable variety. Part of this farm lies on a navigable creek leading to the sound. This farm was considered well sold, especially when compared with Dr. Beach's, which was $100 per acre. The Doctor's is naturally the best soil, but was under neglected culture, and without buildings.

It was our intention to have called at many other places, but being pressed for time, and having more than usual exercise in walking and rowing, we found it inconvenient. Some time, too, was beguiled from us, by having been brought to and compelled to go on board a neat, elegant, and much celebrated yacht, which was then cruizing in those pleasant waters. On board we found the owner, Mr. John Stevens, the well-known and enterprising capitalist in steamboats, and his friend, Mr. James Lynch. Some first-rate old wine, with crackers, cheese, oranges, and pine apples, made the idea of visiting any more farms, for that day at least, quite uninviting.

We did purpose to call, among others, on Mrs. Post, widow of the late Dr. Wright Post, who, we understand, has a green-house with a fine collection of plants. Although her house stands very near the shore, still the foliage allows but little to be seen from the water, except the chimnies. Mr. De Wolfe

shipping merchant of this city, has a farm adjacent to the water—keeps a green-house, and imports improved live stock. Mr. Hugh Lang, also a merchant in the city, has a farm of 50 acres on a beautiful neck of land. He paid, we understand, $12,000 for it, and has expended several more in improvements. Mr. Wilkins, of the bar, has a farm of 400 acres under good cultivation. A part of it is for sale. Clawson's Point consists of 380 acres, including salt meadow, and is very beautifully situated. Price, $25,000 to $30,000. Augustus Ludlow, Esq., owns an excellent farm of 280 acres, including salt meadow. The farms of Mr. Baretto, Mr. Leggett, and the estate of Gouverneur Morris, which last consists of 1,300 acres, are farms that will not suffer in comparison with those of the best cultivated districts.

Visit to Long Island. By the EDITOR.

In the latter part of June, we took a steamboat for Huntington, in Suffolk county, a distance of forty miles from the city. The first farm we visited was that belonging to Mr. Charles Kelsey. It consists of about 250 acres. The former owner inherited it unincumbered and well stocked, together we believe with some money at interest. In the course of a comparatively few years, he, although a respectable farmer of good habits, ran through the whole of it, simply by a slack and exhausting system of farming. When it came into the possession of the present owner, which was seven years ago, scarcely a bit of grass could be found on the whole farm, except in the cow-yard. Now, although Mr. K. had not capital to pay in full, yet, by purchasing manures from the city, he is enabled, notwithstanding the calls of a young and large family, to sell increasing quantities of hay and grain. In a few years he will very probably be in more than mere comfortable circumstances. This farm cost about $10 per acre, and will now command from $20 to $35. He has growing upwards of 1500 locust trees, which he supposes will increase at the rate of 12½ cents each per annum, making them worth, in 20 years, $2.50 apiece, amounting to $3,750. He has known those of 21 years' growth to sell for $5 each.

The next farm we visited was that of Dr. B. F. Bowers, consisting of 250 acres, and purchased within two or three years for $2,275. It is seven or eight miles from the landing. The soil, mostly sandy and sandy loam, had been much exhausted and neglected. A very considerable portion is covered with timber in body, and in scattering collections of trees along the fences and hedges. The distance from the landing made it very expensive in carting street and stable manure, procured from this city. Soon after his purchase, however, he read in the New-York Farmer, to which he has been a subscriber from its commencement, a very favorable account of the effects of bone manure. He at once considered his farm to have additional value, and immediately transmitted through us an order to Capt. Ogden for a quantity of his bone: thus he became the first to introduce this valuable manure into that section of the Island. His experience of its good effects has led him to increase his orders, and his neighbors to follow his example. On very poor sandy soil, he succeeded in obtaining quite a crop of ruta baga, by a moderate application of bone. Dr. B. is getting his poorest and middle quality of land into locust; to this end he put seed at suitable distances in his corn ground, and gave the young plants the same cultivation. The bone, spread broadcast, was serviceable equally to the corn and the locust. From a nursery of locust, he transplants into all the vacant places in his woods. This tree rapidly spreads, and perhaps none propagates faster, and succeeds better in such situations. It is easy to perceive that the prosecution of this plan will make every foot of this farm pay a good interest. In this particular we think lies much of the secret of farming: to occupy every inch, and with the most appropriate growths. The Doctor designed, after taking off one or two crops, to sow clover and turn it under, with a view of enriching the ground, to promote the growth of the locust, and to provide future pasture. We suggested, that after taking one crop to pay for the bone, it should be immediately laid down with perennial grasses. He would thus, forthwith, obtain permanent pasture, that would probably be increasing in value for a number of years.

Very laudable experiments have been made, and are making, on this farm, with mangel wurtzel, rape, carrots, and turnips, as field crops, manured with bone. By the aid of this same manure, his corn, wheat, and oats, promised fully a medium crop. Among the instruments we saw in use was the cultivator. The Doctor's professional duties not permitting him to reside on his farm, it cannot be expected that his plans and views can be fully executed and carried into effect; yet we are well persuaded he will, for a green hand, practically illustrate, and in various ways too, the benefits of taking a deep interest in agricultural reading.

From some facts that came under our observation, the thought was suggested to us, that clover seed would not take or vegetate as well with bone as with other manure. On this subject, as well as on many others, we should be pleased to hear from Dr. Bowers.

The next farm at which we merely called, was that of Mr. Henry Lewis. It is large, but has the disadvantages of being in separate and distant portions. Mr. L. ranks amongst the increasing number of enterprising and public spirited farmers in the place, and will, this season, expend $500 in manure. Unlike most other farmers, he made a good vegetable garden one of the first objects of his care; and among others, a moderate commencement in obtaining improved breeds of cattle and hogs. He has also gone quite extensively into field root crops. In Mr. L.'s two sons are exemplified some of the good effects of having an Agricultural periodical in a farmer's family. A livelier and more elevated interest is taken in the pursuits of the farm, and a desire to know what is going on in other sections of the country, and what improvements and suggestions are applicable to their situation and circumstances, is very apparent. Let any farmer take an Agricultural periodical, read it with interest and pleasure himself, and succeed in getting his sons to do the same, he has taken an important step in rendering them industrious, in laying a foundation for unceasing mental improvement, and in securing their respectability and happiness.

Mr. L. and very many other farmers, in this section of the Island, are much troubled with the increased growth of wild turnips in their oats. Much difficulty attends freeing the oats from them when in a state for market, consequently the price is lessened, and their perpetuity in the soil made more certain. Any light on this subject from our readers will be acceptable.

Among the beautiful locations on the waters is that of Mr. Zebulon Fleet's, lying on the bay, and having a fine view of the sound. There are on Mr. F.'s farm upwards of 40 acres of locust. He sells many young trees for planting, at the rate of 4 to 10 dollars per hundred, the purchaser digging them up. His father, from whom he inherited the farm, was, if we are informed right, either the first or among the first to introduce the culture of the locust; and consequently that most of the trees in the town originated from this farm. Mr. F. supposes the annual growth of locust not to average more than 6 to 8 cents. This we presume is a very moderate estimation. In company with Mr. Fleet, the Rev'd. Mr. Holiday, whose desire to encourage rural taste and improvements cannot but add to his estimation as a spiritual reaper, and a boat load of ladies, we crossed the bay to Eaton's Neck, owned by Mr. John Gardiner, and the widow of the late Jonathan Gardiner, Esq. It consists of upwards of 1000 acres, and a part is under good and successful culture. Having here spent many of our childish and boyish days, and formed many of our most pleasing early associations, a revisit could not fail to bring to remembrance times, when, in company with Plato and Jim, young, shining and sprightly 'darkies,' we waded with trowsers above knees to catch the creeping horse-feet, or tracked the white sand beach in quest of gulls' eggs, and picking up various colored shells and smooth stones. The recollection of these and a thousand other scenes, is like that of the oases, after one has wondered long and far over the desert world.

Mrs. G. sold one and a half acres of locust, standing, for 800 dollars. It was the growth of thirty years. Her late husband made a large oyster pond by carrying a dam across a creek near the dwelling. The tide passes over the top. The oysters do not flourish. It is supposed that there should be an ingress of water at the bottom of the dam. A successful method of raising oysters would be a source of much income to the Island. Information from our readers on this subject will be very acceptable.

In passing through West Neck, in company with Dr. B. we stopped at Mr. W. Walker's. Mr. W. and his family being from home, and his gate nailed, we climbed his pale fence, and took, for a few minutes, undisturbed possession of his premises. The only damage committed was the breaking of one of the pales; for which a suit can be commenced against the Doctor's 'old gray.' The poor animal's plea will be the blood-thirsty cruelty of the flies. The impropriety of fastening him there, need not be brought into view.

But a very few years ago this was a rough, uninviting, common looking place. Mr. W. has enlarged the dwelling, and, in its form and architectural finish, made it a most admirable and beautiful rural structure. In fact, we do not recollect of having seen one that altogether pleased our eye more. He has collected around his house a great variety of elegant shrubbery and ornamental trees, and an abundance of superior fruit. Their

arrangement generally harmonises with, and heightens the beauty of the dwelling. All the out fences are very neat and durable, dividing the fields into the most convenient shape for ploughing, and to show the growing crops to the best advantage. The location of the barn circumscribes the view from the house, and leaves the stranger in some doubt, whether the neat enclosed and highly cultivated fields belong to the owner of the house which he has just past behind the barn. A removal of the barn a short distance back from the road would, we think, and as we presume Mr. W. is aware, remedy both evils. If the people of Huntington do not improve in rural taste, from the example Mr. Walker has set them, we shall conclude their admiration for natural beauties is faint, and their imitative organ very slightly developed.

For well cultivated farms, and for thriving farmers, West Neck will suffer in comparison with very few portions of any of the southern counties of this state. We continued our ride on to Lloyd's Neck, which consists of about 3000 acres, having three owners. Not having met Mr. Lloyd at home until on the eve of returning, we were disappointed in procuring that information we anxiously sought, from one who is known to rank among the most extensive and successful, as well as most intelligent farmers on the Island, or even in the State. On a future occasion, we promise ourselves the pleasure of going over the whole Neck, and obtaining information sufficient for a full description.

Having greatly prolonged our story of mere friendly visits, we shall leave some general observations and conclusions for our next number.

Remarks on Astrology in Reference to Agriculture. By ARATOR. [For the New-York Farmer and American Gardener's Magazine.]

MR. EDITOR,—I have supposed that some account of Astrology, frivolous as it now is admitted to be, might merit a place in your useful paper; not so much on account of the prevailing influence it once had in the world, as of that which it now exerts, however little suspected, on many of the operations of the farmer.

It was the custom among the ancients, upon the death of persons who had rendered their names illustrious by acts of heroism, or of great public utility, to pay them divine honors, and assign to them, as divinities, the sun, moon, or other planets, for places of habitation. To these planets, in process of time, were ascribed the attributes and powers for which the deities after whom they were named had been celebrated in the fictions of mythology. Hence Mars was supposed to be the cause of war, and Mercury to preside over orators and merchants. From this, superstition proceeded still further, and ascribed to the stars an influence either beneficial or malignant over the affairs of men, and taught that the relations of analogy between the paths and periods of the heavenly bodies and things below were the real destinies which preside at our birth, and dispose of future events. This illusive science became the popular creed in the east, and among the Greeks and Romans.

It was not, however, until the subsequent dark ages, when ignorance had cast her shade over the intellectual world, that astrology was reduced to a perfect system of conceit. During a part of this period, it was taught in connection with alchymy and magic in the University of Edinburgh. In France, its predictions were the common theme of court conversation, and the most inconsiderable thing was not done without first consulting the stars; and English history informs us that certain traitors agreed to set fire to London on the second day of September, because an almanac assured them that that would be a lucky day, a planet then ruling which prognosticated the downfal of a monarch.

After, however, the succeeding dawn of learning and taste, and especially since the many discoveries in physical science, the whole system has been abandoned by the learned. But errors, when they are of long standing, and constitute a part of the popular creed, are not easily eradicated. They are handed down from one generation to another as truths established by long experience. In such cases, in order to prepare the way for a candid hearing of the argument, it is often needful to trace errors to their fountain head, and show the source whence they originated. Our farmers, and there are too many of them, who still retain confidence in the absurd and illusive science, whose history I have attempted to sketch, are without suspicion that it originated in and draws its whole support from heathenish superstition.

Agreeably also to this ancient but absurd superstition, the human body was conceived to be constituted of twelve different parts, answering to the twelve signs or constellations of the zodiac. These signs or constellations, while the sun was passing between them and the earth, were supposed to have a particular influence upon the appropriate parts of the body. Thus, when the sun entered the sign or constellation Aries, (that is, passed between Aries and the earth,) the head was under the influence of the sign Aries; so when the sun passed on to Taurus, the neck was under the peculiar influence of that constellation. In like manner, each of the other signs or constellations held, while the sun was passing between it and the earth, a sympathetic power over its appropriate portion of the body. The same supposition was extended to the brute as well as to the human species.

A fancy so puerile, and void of support from actual observation, could never have found its way into an enlightened age; yet, it is not uncommon to find farmers in some parts of our country consulting their almanac to know in what part of the body the sign is; or, in other words, at what time the relative portion of the earth, the sun, and the fixed stars, will shed its propitious influence on certain proposed rural operations.

It is extremely desirable no longer to see in front of our almanacs the representation of a man sitting on the globe, surrounded by the names of the zodiac. Previous to the time of Dr. Franklin, our almanacs contained the astrological principles for calculating, not only the revolutions of empires, but also the favorable or unfavorable termination of diseases. I once saw an almanac, printed about one hundred years ago, which had been found among the papers of a physician. From the written minutes with which it was filled, it appears that it was used as a pocket companion in the visits of the doctor to his patients. Not a dose of physic could be administered without first ascertaining, by an examination of the almanac, the hour at which the medicine ought to be given, in order to have the desired effect. Dr. Franklin did an important service to his country by simply omitting in the almanacs which he printed the astrological jargon about the house of wealth and the conjunction of the planets.

The fancied influence of the moon in occasioning various phenomena interesting to the farmer is clearly a part of the same illusion. The known effects of that planet upon the waters of the ocean, while the cause remained unexplained, and was supposed to belong peculiarly to her, was an argument that she produced still other effects, from causes not more mysterious or less understood. But it has been ascertained that the tides are the effect of gravitation, a power common to all matter, belonging alike to the celestial bodies, the earth, and the pebble which lies upon its surface. The only difference in this power consists in its varied tensity, which every where increases as the mass of matter is greater, and the square of the distance at which it operates is less. In all this there is nothing analogous to the supposed influence of the moon upon the concerns of the farmer. This subject has undergone a thorough investigation by a series of long and well-conducted experiments, made for the purpose by persons of the first scientific attainments in England, France, Germany, and Italy. The results obtained from their researches are, that the influence of the moon upon the weather is so small, that it is totally lost amid the great variety of other forces and causes which alter the state of our atmosphere. That her increase or decrease has no influence upon either men or animals, or upon the germination of seeds, the rapidity of their growth, or upon their quality.

If the prejudice which I have been combatting had no injurious influence upon practice, it would not have deserved the notice I have given it; but wherever it exists, the star-gazer will often find it necessary to intercept the most urgent business for the purpose of seizing the lucky moment when the moon and stars shall favor efforts which might be made with equal effect at times of leisure. Besides, the farmer who places his dependence on the operation of causes beyond his control, will naturally undervalue the advantages of exertion. Such is the tendency of rules which inspire hopes of success in the business of husbandry, from any other source than our own watchful industry.

ARATOR.

Woodford's Early Green Marrow Pea. By EDWARD SAYERS, Gardener to Dr. Hosack. [Communicated for the New-York Farmer and American Gardener's Magazine.]

In compliance with your request, I have fully tested the qualities of the above pea, and herewith send the result, which you will place before the public if you think proper.

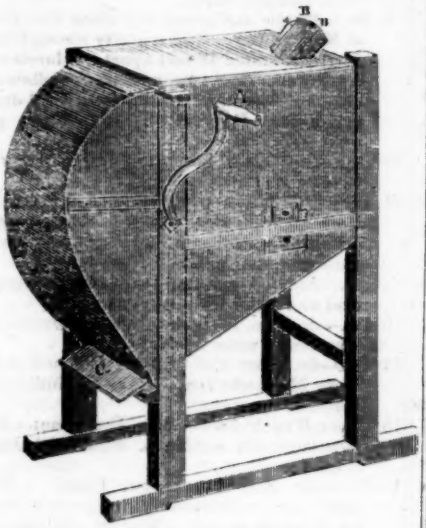
The peas were sown on a gravelly soil, in connection with the early *Nonpareil* and *Imperial blue*; they had no particular attention in culture, which perhaps is the better way of testing all new varieties of vegetables. The Nonpareil was fit for table about six days before the Marrow; and the Imperial did not come to any perfection, which is often the case when sown late. The Marrow appears to have all the good qualities of a

superior pea, and to be particularly adapted to this climate. The pea with me is a good bearer, the *pod* setting mostly in pairs, and containing on an average from 6 to 8 peas in a *pod*, of a good size, and fine bright green—when boiled, of a very *superior* flavor. The principal excellence of this pea appears to be in the vine, which is more hard and solid than the Imperial blue, and consequently more capable to bear the sudden changes, and withstand the mildew which generally attacks the tender peas late in the season. I hope in future to test more of the qualities of this vegetable, and am of an *opinion* it will be generally cultivated, and ranked among the best peas known for culinary purposes. Yours, respectfully,

EDWARD SAYERS.

Hyde Park, July 16, 1834.

Corn-Shellers, Corn-Crackers, and Turnip-Cutters. [Communicated for the New-York Farmer and American Gardener's Magazine.]



Among the machinery which mechanical ingenuity has furnished the farmer, to expedite farming operations, is the Corn-Sheller. They are constructed to shell either one or two ears at a time. They require two persons, and will shell perfectly clean, and nearly as fast as one can put in the ears; consequently the number of bushels in a day must be very considerable. Some of them, as in the present drawing, has the shelling apparatus incased, to prevent the corn from being scattered. B B are the two openings into which the ears are dropped; A, the turning crank; C, the opening at which the corn comes out. The prices for substantially built machines vary from 8 to 15 dollars.

H. Huxley & Co., 81 Barclay street, have affixed to the Corn-Shellers a simple apparatus for cutting turnips and potatoes for stock. They are also appending one for cracking the corn.

Bone Dust as a Manure. By the EDITOR.

We learn from Capt. Ogden, and Mr. Hornby, that the demand for bone manure has very much exceeded their ability to comply. Early in the spring, Mr. Hornby had so large a quantity on hand, that he expected to be under the necessity of exporting it to England; but the farmers, on exhausting the stock of Capt. Ogden, were directed to Mr. H. So eager were some farmers to insure a supply in future, that they wished to make an exclusive purchase of all he could grind for a considerable period. Mr. H. informs us, that a great portion of those who purchased his bone said they were induced to try it from what they had read of it in the New-York Farmer.

The question may arise, how came Capt. O. to have a great demand for his bone, while Mr. H. had comparatively none? Simply because, in our editorial remarks, we principally referred to Capt. O.'s establishment, and because, in compliance with our request, he made several communications in the Farmer, in reference to its advantages. We mention this fact, to show that it is the interest of all those farmers, gardeners, manufacturers, and mechanics, who have any thing to sell, or who wish to acquire a reputation, which to many is their only property, to write for the periodical press. Many instances of this kind have come to our knowledge. Mr. H. has a stock of bones that will require more than a year to grind, at the rate of about 125 bushels per day. Capt. Ogden's mill will grind three times this quantity.

Considering the increased importance of bones, every person should exert his influence to have them saved and collected. We should suppose country merchants, in some sections of the country, might encourage this species of economy in their neighbors. The price of unground bones is from 6 to 12 cents per bushel.

Mr. Hornby has furnished us with the following testimony, in favor of bone manure.

Middleham, Elizabethtown, N. J., 3d mo., 31, 1834.

MR. HORNBY,—Sir: In reply to your note, requesting information as to the result of my use of bone dust manure in the past year, I have but few facts from which conclusions may be drawn, but such as they are, I send them with pleasure for your service.

On one acre, after early potatoes manured from the stable, I ridged the land, and drilled in ruta baga seed, together with eighteen bushels of bone dust. The growth was particularly luxuriant, the tops being interlaced, though the ridges were three feet apart. Produce, nearly five hundred bushels per acre, of good quality and large size, weighing from four to six pounds each, whilst one, a little more bulky than his fellows, reached six pounds and a half.

One acre in another field, a fallow following pasture, and unmanured for many years, produced bulbs of 3 inches diameter on either side of one unmanured ridge, where none exceeded one inch diameter, except this one ridge, all the rest were drilled with bone dust at the rate of eighteen bushels per acre.

All my land, though a mellow light loam, has been reduced to a state of poverty, by close cropping without a sufficiency of manure. I am yours, respectfully, OBH. ELLIOT.

May 27th, 1834.

The oats where the bone dust was on the corn are more than twice as big as on the other manure. It shows very plain on the grass, wheat, and rye. GEO. BARNES.

AMBOY, 3d June, 1834.

SIR—The middle of last week I sent you an order for bone dust: not having heard from you since, I take the opportunity of a private conveyance to repeat the order. You will please send me by the steamboat Napoleon, as soon as you conveniently can, one hundred bushels of bone dust of the fine kind, writing me the day before sending. I will thank you to have it sifted something finer, as the last had rather too much coarse in it, and to have it put up in strong bags, as the last were something torn when they were landed from the steamboat. I find the bone dust good on oats and grass. Your immediate attention to this will much oblige your obedient servant,

JOHN R. WATSON.

Mr. John Hornby.

South Florida a Residence for Invalids. By Doct. M'KINNEY. [For the New-York Farmer.]

MR. FLEET,—The experience of ages has ever shown the advantages of temperate latitudes in pulmonary disease; and even to the present day, the medical faculties, both of Europe and America, concur in the same fact. In our own country, from the constant atmospheric vicissitudes, we are, perhaps, more exposed than any other nation to this malady, and the records of mortality in our large commercial cities but too plainly show the little efficacy of the healing art in arresting the progress of this enemy to human life. Even the expensive and painful voyages to the South of Europe have not exerted in general a salutary influence; hence many forsake their friends and firesides only to languish a few months in the ever changing climate of Italy or France, and then sink into an untimely grave! In our southern and south-western states, the same inconvenience exists; and although the cold may not be excessive, yet all the evils of the coldest winter are produced by the sudden mutations of a humid atmosphere from heat to cold. The West India Islands are more favorable to invalids, if a proper site be selected, but the expenses are such that few are able to support them. In addition to this, the difference of language and religion, and the great prejudice that exists there against all hectic patients, renders a residence there, if not impracticable, at least disagreeable. Hence it frequently happens, that the poor victim, tired and disgusted, leaves his sunny abode in the month of April, and arrives at home at the most precarious season of the year, when he soon sinks under a renewed attack of his disorder. From the many difficulties attending a voyage to the West Indies, many are induced to defer till they have tried all other remedies, neglecting the only probable mode of obtaining relief. Thus, when death is at the door, and there is no hope of escape, the emaciated victim is hurried away to a southern clime, only to languish out a few days of suffering and sorrow, to sink into the silent tomb! It is then worthy of serious inquiry whether we have in our own country a situation suited to sufferers of this description, where they may enjoy all the advantages of the balmy equable atmosphere of the tropics, without the disadvantages of a residence in a foreign land. St. Augustine has for some time been a resort for invalids, but its humid and variable atmosphere must ever prove injurious rather than beneficial, and all middle Florida is in a great degree liable to the same inconvenience. South Florida alone, in all our vast country, is free from the objection of a humid and variable atmosphere. By South Florida, I mean that part of the peninsula south of 27°, including the Keys on the Florida reef, Cape Romano, Cape Sable, and Cape Florida. Of Cape Sable and Cape Romano I know nothing, having never seen them. The Keys are not the best residence for invalids, on account of their exposure to

the winds, but even there, (in Key West and Indian Key, which are inhabited,) many have been benefitted by a winter residence. Frosts are unknown, and atmospheric changes are for the most part gradual.

I wish to call the attention of the public more especially to the Cape Florida settlement, as a retreat for invalids. It is situated in about 25° 30′ N., has a beautiful shoal bay of salt water in front. The Miami river enters the bay in the midst of gently rising lands, without marshy shores. Its current glides gently over a bed of rocks, and the shores in many places are of the same durable material. The bay, and consequently the main land, is sheltered from the north-east wind by a tongue of timbered land projecting into the sea, and the settlement is sheltered on the north by a thick growth of trees. The water of the river above tide-water is clear, sweet, and wholesome; they abound in fine fish for angling, and the banks are clothed with the perpetual verdure of spring, while fruit succeeds to fruit the whole year. Limes of a good quality are abundant, and many tropical exotics are now cultivated, the most delicate of which flourish well. But what is of more importance to the invalid is its dry, mild, and temperate atmosphere. During the winter months the variation of the thermometer is a mere trifle, and the degree of cold never so great as to be disagreeable. There is but little rain, not more than sufficient to keep down the dust. In many tropical regions the thermometrical variation is much greater than it is here; even in the island of Cuba it is more variable, on account of the elevation of its central range of mountains. This section of Florida is very narrow from sea to sea —constantly fanned by gentle breezes; there are no mountains in its vicinity, yet the elevation is sufficient for all the purposes of draining. Again, the north winds sweeping for many leagues the heated gulf stream, reach the land deprived of their chilling frosts, and prove refreshing breezes rather than destructive gales. The sea-breeze, which on many tropical shores proves so obnoxious to the health of invalids, is here so gentle as to cause but little inconvenience.

There are, however, difficulties attending Cape Florida as a retreat for invalids: there are no houses suitable for their accommodation. The inhabitants are chiefly pioneers, who depend upon fishing and hunting for a precarious existence. They have neglected all improvements except those absolutely necessary for their own families. Agriculture is almost entirely neglected, and the little bread used is chiefly brought from Key West. The entrance to Cape Florida is difficult, except to skilful pilots; but this could be remedied by going to Key West, and where the entrance is easy, and thence in a steamboat to the Cape. It is to be hoped that something will soon be done to smooth existing difficulties, and render the place comfortable for those who sojourn there.

Richard Fitzpatrick, Esq. an enterprizing citizen of Florida, is actually engaged in clearing and stocking a farm at the mouth of the Miami river, preparatory to the erection of suitable buildings for the reception and accommodation of all who may be disposed to pass the winter in these sunny regions. Mr. F. possesses ample means, and is owner of the lands he occupies. It is probable he will soon complete his undertaking.

There is still another consideration which has struck me as important: Cape Florida is healthy in summer as well as winter; hence, those invalids who do not possess the means of passing the winter in the south, and the summer in the north, may emigrate to Florida, and become permanent citizens, thereby conferring a benefit on the country, while they themselves are benefitted by the country. Government lands have not yet been surveyed, hence none can be obtained, except Spanish grants, the titles to which have not yet been fully established. This prevents emigration, and tends to keep this territory in a comparative state of imbecility. To place these lands in market would be the means of increasing the population of Florida, of adding many thousands to the public funds, and of aiding the great interests of humanity and benevolence.

New-York, July 12, 1834.

NEW PUBLICATIONS.

Report of the Exhibition of Agricultural Productions, &c. at Stirling, at the premises of W. DRUMMOND & SONS, Nursery and Seedsmen, from November 16, 1832, till March 16, 1833; with communications on the following important subjects, viz.: Wedge and Tile Draining; Thorough Drainage and Deep Ploughing; Bones as a Manure; the Improvement of Agricultural Plants. Stirling: Published by W. Drummond & Sons. 1833.

This is a pamphlet of 74 pages. It is so replete with useful information to the practical farmer, and exhibits so many facts from which important deductions can be drawn, that we conclude to publish the greater part in the columns of the Farmer. We recommend it to the especial attention of those who take an interest in agricultural fairs and exhibitions. Those who are desirous of aiding our intended Fair, at Harlaem, next October, will find information relative to the articles suitable for exhibition, and as samples for the sale of quantities.

Before entering upon the details, it may be proper to remark, that any Report, however minute, must necessarily convey but a very inadequate idea of the *effect* produced by the whole number of specimens, from so many different quarters—forming an extended, and we may say splendid, vista—in orderly arrangement—contributing, in separate or collective merit, towards the general stock of agricultural information and intelligence.

The arrangement, so far as practicable, was in classes of species and varieties, in order to aid comparison. At one end of the room, the different sorts of grain, in sheaf, were disposed with a view to rural effect; with a portrait of the Right Hon. Sir John Sinclair, Bart.,—a mark of respect to one who has so long been the zealous and efficient promoter of agriculture, and who has taken a lively interest in this exhibition. *Bouquets* of grain and of grasses, interspersed along the ranges, imparted a pleasing and exhilirating air to the whole; and, altogether, showed that the exhibition of agricultural seeds and plants may, even to the general visitor, be rendered highly attractive.

It is not the province of the reporters to draw comparisons, or give opinions on individual specimens—it is only in the exhibition room, where a superior article will best meet with its meed of approbation, and where even an inferior may give rise to the most profitable discussion.

The following classes are in the order of the explanatory circular issued early last season:

TURNIP.

1 Swedish—Purple top, from the farm at Culcreuch, A. G. Speirs, Esq. Soil, light loam. 24 field carts farm yard dung, per acre.

2 Do.—do. and green top, from the farm at Buchanan House, grown on an inferior turnip soil. 40 field carts farm yard dung and 4 chalders lime per acre before drilling. Produce, 39 tons bulbs per acre.

3 Do.—Purple top, exhibited by Mr. M'Nab. Cowie. Soil, light hazel loam. Manure, farm yard dung.

4 Do.—Purple and green top, by Mr. Smith, of Deanston, grown in the field on Deanston farm. Extent, 4 acres. Soil, a medium loam. First crop after draining and trench-ploughing. 36 field carts farm yard dung per acre, put into drills. Sown 2d June, 1832.

5 Do.—Purple and green top, by Mr. Moubray, of Cambus, grown on a clayey loam or haugh land. 24 tons dung per acre. Produce, 42 tons bulbs per acre.

6 Do.—Purple top, from the farm at Blairdrummond, grown on a thin stratum of black muirish soil, of open texture, incumbent on irony gravel. 24 carts farm yard dung per acre.

7 Do.—Green top, by Mr. Mitchell, Alloa. Soil, medium loam

8 Do.—Purple top, by Mr. Robertson, Cowie. Soil, medium loam.

9 Do.—Purple and green top, from the farm at Keir House. Soil, a pretty strong loam, furrow-drained 16 feet apart in March and April last, after two oat crops following old ley. Manure, 30 carts farm yard dung per acre. Produce, 37 tons bulbs per acre.

10 Do.—Purple and green top, from Carmuirs farm, near Falkirk.

11 Do.—Purple top, from the farm at Polmaise House. Soil, strong brown clay, wedge-drained 13 years ago. 26 single carts farm yard dung per acre.

12 Do.—Shirreff's purple top, from Polmaise. Soil and treatment, same as above.

13 Do.—do. do. from the farm at Deanston. Treatment same as No. 4.

14 Do.—do. from the farm at Coldoch, John Burn Murdoch, Esq. Soil, medium loam. Manure, bone dust.

15 Green Top Yellow—from Deanston. For treatment, &c. see No. 4. Sown 16th June, 1832.

16 Do.—do. from Clangregor Castle. Soil, stiff loam, rather elevated, parallel drained 8 yards apart. Manure, 25 bushels bone dust per acre—no lime or other manure. Produce, average per Scotch acre, 32 tons 14 cwt. of bulbs, and 10 tons 11 cwt. of shaws or tops.

17 Do.—do. from Daldorch farm, Catrine Bank, Ayrshire, grown on strong clay soil, with mixture of peat moss, furrow-drained and deep ploughed. 30 field carts of farm yard dung per acre. Sown middle of June.

19 Do.—do. from Cambus. Soil a clayey loam. 24 tons dung per acre. Produce, 45 tons per acre.

23 Do.—by Mr. Callender, Northfield. Soil, dark loam. Situation high and exposed. 5 chalders lime per acre before drilling. 15 tons farm yard dung, put into drills. Sown 16th June. Produce per acre, 29 tons. Stored 5th November, 1832.

26 Do.—from Keir. Treatment, vide No. 9. Produce, 40 tons bulbs per acre.

28 Do.—from Laurick farm, near Dunblane. Soil, sandy loam. Manure, a compost of 12 carts dung, 20 bolls lime, and 26 carts earth, per acre, made up three months previous.

31 Do —from Boquhan.

32 Do.—from Carmuirs farm, near Falkirk

33 Red Top Yellow—from Deanston. For treatment, see No. 4.

34 Do.—do. from Buchanan. For treatment, see No. 2. Produce, 30 tons per acre.

35 Do.—do. from Cambus. Soil, a clayey loam. 24 tons dung per acre. Produce, 40 tons per acre.

36 Do.—do. from Blairdrummond, grown on a thin stratum of black muirish soil, of open texture, incumbent on irony gravel. 24 carts farm yard dung per acre.

44 Dale's Hybrid, (betwixt the Swedish and White Globe) from Doune Lodge. Soil, light deep loam. Manure, cow dung.

45 Do.—do. from Gartur. Soil, light loam.

46 Do.—do. from Keir. Soil, stiff loam.

47 Do.—do. from Clangregor Castle. Soil, stiff loam, rather elevated, parallel drained 8 yards apart. Manure, 25 bushels bone dust per acre—no lime or other manure. Produce, per Scotch acre, 36¼ tons bulbs, and 12½ tons of shaws or tops.

48 Do.—do. from Deanston, grown in the field on Deanston farm, after mangle wurzel, ploughed up in spring, 16 inches deep—extent 100 yards of a drill. 20 tons farm yard dung per acre. Soil, medium loam—sown 16th April, 1832.

49 Do.—do. from Polmaise. Soil, stong brown clay. 26 carts farm yard dung per acre—lime having been previously applied.

54 Cream Colored—from Culcreuch.

55 Do. from Deanston.

56 Golden—from Mr. Mitchell, Alloa. Globe shaped and gold color.

57 White Globe—from Mr. William Taylor, Lanrick of Clangregor. Soil, high lying and muirish. Manure, 20 bushels bone dust per acre.

58 Do.—from Mr. Callander, Northfield. Soil, dark loam, situation high and exposed, 5 chalders lime per acre, before drilling—15 tons farm yard dung, put into drills. Produce, 30 tons bulbs per acre.

59 Do.—from Clangregor Castle, grown on a stiff muirish soil, but parallel drained 8 yards apart, the land previous to draining not worth 12s. 6d. an acre. 18 single carts of farm yard dung and 4 chalders lime per acre—the lime applied before making up the drills. Average weight of produce per acre, 39 tons 13 cwt. of bulbs, and 7 tons 13 cwt. of shaws or tops.

60 Do.—from Keir. Soil, a pretty strong loam—furrow drained 16 ft. apart in spring last. Manure, 50 bushels bone dust per acre. Produce, 48 tons bulbs per acre.

61 Do.—from Keir, grown on the same field as the last. Manure, 30 carts farm yard dung per acre. Produce, 46 tons bulbs per acre.

63 Do.—from Blairdrummond, grown on a thin stratum of black muirish soil of open texture, incumbent on irony gravel. Produce, 36 tons bulbs, and 10 tons 12 cwt. shaws or tops per acre.

73 Green Top White—from Doune Lodge. Soil, light deep loam. Manure, cow dung. Crop superior.

74 Do.—from Lanrick farm, near Dunblane. Soil, sandy loam. Manure, a compost of 12 carts dung, 20 bolls lime, and 26 carts earth, per acre, made up 3 months previous to using.

75 Do.—from Keir. Soil, a pretty strong loam, furrow drained, 16 feet apart, in spring last. Manure, 50 bushels bone dust per acre. Produce, 40 tons bulbs per acre.

78 Red Top White—from Cambus. Soil, clayey loam. 24 tons dung per acre.

88 A collection of turnip, *medium size*, consisting of all the above mentioned sorts, exhibited by Messrs. Drummond from their proof lots. Soil, light sandy loam.

The fine appearance of the turnip department evinced the great attention bestowed on the cultivation of this valuable root; and also shewed that other qualities, than mere size in the selection, had been kept in view more generally than last season. We then, in our Report, noticed, as some of the good qualities, along with sufficient size,—"to be well rounded, with a single tap root, the neck small, and placed on a proper convexity for throwing off the rain and moisture." The field for improvement is ample and interesting, and in order to assist, as far as we can, from the specimens before us:

By repeated trials, (measuring the water displaced on immersion,) sound Green Top Yellows, of 7 or 8 lbs. weight, gave, as their highest average, 32 cubic inches per lb., which may be assumed as a medium standard of solidity, or density. Now, by dividing the number of cubic inches, contained in any root, by 32, (the remainder being halved for 16ths, or ounces,) the quotient gives the number of pounds and ounces that should be, of the standard solidity; the actual weight of the root will then indicate the solidity, which will either be at, above, or below the standard—as the numbers of the weight are equal, or greater, or less than the numbers of the size.

We have thus a very simple scale, which, compared with the weight, affords a more just criterion of value, and at the same time a correct idea of their sizes.

The following are selected from different soils and of various weights, including two of the heaviest of each variety:

		Should weigh by size and standard.		*Actual weight.*	
		lb.	oz.	lb.	oz.
Swedish—Buchanan,		11	2	13	12
Do.	Mr. J. M'Nab, Cowie,	10	5	13	8
Do.	Deanston,	9	1	11	0
Do.	Mr. J. Robertson, Cowie,	7	6	9	0
Do.	Polmaise, medium size,	5	8	6	4
Do. (Shirreff's)	do. do.	4	12	5	7
Green Top Yellow—Catrin Bank,		16	0	15	0
Do.	Cambus,	15	0	14	0
Do.	Do.	18	0	13	6
Do.	Buchanan,	10	8	10	0
Do.	Carmuirs farm,	6	6	6	10
Red Top do.—Doune Lodge,		12	0	12	10
Do.	Buchanan,	11	8	11	12
Do.	Deanston,	10	0	10	8
Do.	Cambus, med'm size	8	0	8	6
Dale's Hybrid—Cambus,		13	12	12	0
Do.	Buchanan,	12	8	11	8
Do.	Deanston,	9	8	9	0
Do.	Mr. Hudson,	8	4	7	12
White Globe—Keir,		20	8	15	8
Do.	Do.	19	0	15	0
Do.	Clangregor,	16	0	12	8
Do.	Do.	12	12	12	0
Do.	Mr. Lochy,	9	13	9	8
Do.	Lanric farm,	8	8	8	4
Red Top White—Rednock,		16	8	13	0
Do.	Mr. Mitchell,	14	8	12	0
Do.	Blairdrummond,	13	8	12	0
Do.	Polmaise,	8	7	8	0
Green Top White—Cambus,		12	0	11	0
Do.	Lanrick farm,	11	0	10	8
White Tankard—Keir,		16	0	14	0
Purple do.	—Northfield,	12	10	11	8

From the above test, the superiority of the Swedish is very decided, and contrary to other sorts, greater size indicates also greater solidity; taking into view the comparative nutritive qualities stated at the end of this section, it will be seen that the heaviest Swede is at least equal to one and a half of the heaviest Globe.

The Red Top Yellow appears to deserve the second place, being above the standard. A gentleman who cultivates extensively, told us, the other day, that his sheep always gave it the preference next to Swedish—perhaps it may not be unwise to consult that sagacious animal a little farther on this matter. The Green Top Yellow is well known as a good turnip, rather excels the Red Top Yellow in size, but falls off a little, at least in light soils, where it exceeds the weight of 10 lbs.

Dale's Hybrid is of good size, and though the shape varies a little, is always convex at the neck, which is perhaps its principal merit. In some instances the produce was rather greater than the green top yellow, but does not seem to be more solid. Purple Top Swedish, raised at Polmaise, from selected bulbs, and Shirreff's Purple Top Swedish, are both highly improved in form and texture. The White Globe has rather the advantage of the other whites in density, and also in shape.

Clay soils are found to produce roots of more equal shape and firmer texture than light soils; the Green Top Yellow, from Catrin Bank, is a fine instance of this. Lime, applied either previously or in compost, is considered by some to have the effect of lessening the proportion of top, or leaves, to the root.

POTATOES.

Pink-eyed Kidney—by Mr. Speirs, of Culcreuch, of superior flavor, not subject to disease, having been above 20 years on the same farm, without degenerating. Produce of 8 falls, 6¼ bolls, Stirlingshire measure. Soil, loam of a medium texture.

Linen Draper—Mr. Ebenezer Allan, Spring Kerse, from clay soil. Manure, coal ashes. Produce, from 12 pecks, 23 bolls.

Do.—Mr. J. Hutcheson, Gargunnock. Light soil. Manure, woollen rags. Produce, from 14 potatoes, 14 pecks.

Do.—Mr. Miller, Torry; sandy loam. Mr. Jas. Faichney, Ardoch; stiff loam.

Buff—Mr. Miller, Torry; sandy loam. Mr. A. Sinclair, Muthill; medium loam. James Noble, Esq.; from carse soil at Corntown.

A collection of potatoes by Messrs. Drummond—the results of a comparative trial under equal circumstances on the same lot. Soil, light loam—planted April 30, raised October 3, 1832.

Late Sorts.

	Four yards of a drill weighed
Buff, flavor superior, mealy,	41 lb.
Irish Blue, do. do.	36
Red French Kidney, good, waxy,	35½
Pink-eyed Kidney, superior, mealy,	29
Perthshire Red, flavor fine, waxy, but firm,	27
Guernsey Kidney, superior, mealy,	21
Red and White Kidney, good, mealy,	21
Black, waxy,	18½
Yam, used chiefly for cattle,	18½

Early Sorts.

Taylor's Fortyfold, superior, very white and mealy,	40½
Miller's Early, flavor good,	30½
American, good, mealy,	25½
Ross's Improved, superior, white and mealy,	24
Round Ash-leaved, very early, waxy,	12
Ash-leaved Kidney, good, mealy,	10½

The Calicoe failed from curl.

Irish Blue, whole produce exhibited in hampers, being the results of an experiment on the cultivation of potatoes by Messrs. Drummond, viz.:

No. 1.—On the plan recommended by Mr. Knight, of Downton. The tubers were whole, weighing half a pound each, and were planted at the distance of 6 inches, in rows, which were 4 feet apart, and lying from south to north.

Forty square yards required of seed 90 lb.—produced 364 lb.; being per acre, of seed, 136 bushels, and of crop, 550 bushels. Net increse, 414 bushels.

No. 2.—On the same plan, with the exception of the tubers being planted at 9 inches, instead of 6 inches in the row.

Forty square yards required of seed 60 lb.—produced 326 lb.; being per acre, of seed, 91 bushels, and of crop, 493 bushels. Net increase, 402 bushels.

No. 3.—On the same plan, with the exception of the sets being cut of the common size.

Forty square yards required of seed 6 lb.—produced 276 lb.; being per acre, of seed, 9 bushels, and of crop, 417 bushels. Net increase, 408 bushels.

No. 4.—On the plan of sets cut of the common size, and planted 6 inches separate, in rows 2 feet apart.

Forty square yards required of seed 12 lb.—produced 376 lb.; being per acre, of seed, 18 bushels, and of crop, 568 bushels. Net increase, 550 bushels.

Grown on the same lot, under equal circumstances; planted May 28; raised October 12. Soil, a brown loam. Manure, ¼ ton farm yard dung to each 40 square yards, put into drills, being at the rate of 30 tons per acre. In the calculations, the acres are imperial, and the bushels 80 lb. each. The plants of Nos. 1 and 2 were highly vigorous, and early in advance of the others; their tubers were not over large, and contained a greater proportion of small. The plants of No. 3 gained fast in autumn, and produced by far the largest tubers, but did not ripen so well; those of No. 4 were most equa sized.

The above experiment was undertaken at the

arrangement generally harmonises with, and heightens the beauty of the dwelling. All the out fences are very neat and durable, dividing the fields into the most convenient shape for ploughing, and to show the growing crops to the best advantage. The location of the barn circumscribes the view from the house, and leaves the stranger in some doubt, whether the neat enclosed and highly cultivated fields belong to the owner of the house which he has just past behind the barn. A removal of the barn a short distance back from the road would, we think, and as we presume Mr. W. is aware, remedy both evils. If the people of Huntington do not improve in rural taste, from the example Mr. Walker has set them, we shall conclude their admiration for natural beauties is faint, and their imitative organ very slightly developed.

For well cultivated farms, and for thriving farmers, West Neck will suffer in comparison with very few portions of any of the southern counties of this state. We continued our ride on to Lloyd's Neck, which consists of about 3000 acres, having three owners. Not having met Mr. Lloyd at home until on the eve of returning, we were disappointed in procuring that information we anxiously sought, from one who is known to rank among the most extensive and successful, as well as most intelligent farmers on the Island, or even in the State. On a future occasion, we promise ourselves the pleasure of going over the whole Neck, and obtaining information sufficient for a full description.

Having greatly prolonged our story of mere friendly visits, we shall leave some general observations and conclusions for our next number.

Remarks on Astrology in Reference to Agriculture. By Arator. [For the New-York Farmer and American Gardener's Magazine.]

Mr. Editor,—I have supposed that some account of Astrology, frivolous as it now is admitted to be, might merit a place in your useful paper; not so much on account of the prevailing influence it once had in the world, as of that which it now exerts, however little suspected, on many of the operations of the farmer.

It was the custom among the ancients, upon the death of persons who had rendered their names illustrious by acts of heroism, or of great public utility, to pay them divine honors, and assign to them, as divinities, the sun, moon, or other planets, for places of habitation. To these planets, in process of time, were ascribed the attributes and powers for which the deities after whom they were named had been celebrated in the fictions of mythology. Hence Mars was supposed to be the cause of war, and Mercury to preside over orators and merchants. From this, superstition proceeded still further, and ascribed to the stars an influence either beneficial or malignant over the affairs of men, and taught that the relations of analogy between the paths and periods of the heavenly bodies and things below were the real destinies which preside at our birth, and dispose of future events. This illusive science became the popular creed in the east, and among the Greeks and Romans.

It was not, however, until the subsequent dark ages, when ignorance had cast her shade over the intellectual world, that astrology was reduced to a perfect system of conceit. During a part of this period, it was taught in connection with alchymy and magic in the University of Edinburgh. In France, its predictions were the common theme of court conversation, and the most inconsiderable thing was not done without first consulting the stars; and English history informs us that certain traitors agreed to set fire to London on the second day of September, because an almanac assured them that that would be a lucky day, a planet then ruling which prognosticated the downfal of a monarch.

After, however, the succeeding dawn of learning and taste, and especially since the many discoveries in physical science, the whole system has been abandoned by the learned. But errors, when they are of long standing, and constitute a part of the popular creed, are not easily eradicated. They are handed down from one generation to another as truths established by long experience. In such cases, in order to prepare the way for a candid hearing of the argument, it is often needful to trace errors to their fountain head, and show the source whence they originated. Our farmers, and there are too many of them, who still retain confidence in the absurd and illusive science, whose history I have attempted to sketch, are without suspicion that it originated in and draws its whole support from heathenish superstition.

Agreeably also to this ancient but absurd superstition, the human body was conceived to be constituted of twelve different parts, answering to the twelve signs or constellations of the zodiac. These signs or constellations, while the sun was passing between them and the earth, were supposed to have a particular influence upon the appropriate parts of the body. Thus, when the sun entered the sign or constellation Aries, (that is, passed between Aries and the earth,) the head was under the influence of the sign Aries; so when the sun passed on to Taurus, the neck was under the peculiar influence of that constellation. In like manner, each of the other signs or constellations held, while the sun was passing between it and the earth, a sympathetic power over its appropriate portion of the body. The same supposition was extended to the brute as well as to the human species.

A fancy so puerile, and void of support from actual observation, could never have found its way into an enlightened age; yet, it is not uncommon to find farmers in some parts of our country consulting their almanac to know in what part of the body the sign is; or, in other words, at what time the relative portion of the earth, the sun, and the fixed stars, will shed its propitious influence on certain proposed rural operations.

It is extremely desirable no longer to see in front of our almanacs the representation of a man sitting on the globe, surrounded by the names of the zodiac. Previous to the time of Dr. Franklin, our almanacs contained the astrological principles for calculating, not only the revolutions of empires, but also the favorable or unfavorable termination of diseases. I once saw an almanac, printed about one hundred years ago, which had been found among the papers of a physician. From the written minutes with which it was filled, it appears that it was used as a pocket companion in the visits of the doctor to his patients. Not a dose of physic could be administered without first ascertaining, by an examination of the almanac, the hour at which the medicine ought to be given, in order to have the desired effect. Dr. Franklin did an important service to his country by simply omitting in the almanacs which he printed the astrological jargon about the house of wealth and the conjunction of the planets.

The fancied influence of the moon in occasioning various phenomena interesting to the farmer is clearly a part of the same illusion. The known effects of that planet upon the waters of the ocean, while the cause remained unexplained, and was supposed to belong peculiarly to her, was an argument that she produced still other effects, from causes not more mysterious or less understood. But it has been ascertained that the tides are the effect of gravitation, a power common to all matter, belonging alike to the celestial bodies, the earth, and the pebble which lies upon its surface. The only difference in this power consists in its varied tensity, which every where increases as the mass of matter is greater, and the square of the distance at which it operates is less. In all this there is nothing analogous to the supposed influence of the moon upon the concerns of the farmer. This subject has undergone a thorough investigation by a series of long and well-conducted experiments, made for the purpose by persons of the first scientific attainments in England, France, Germany, and Italy. The results obtained from their researches are, that the influence of the moon upon the weather is so small, that it is totally lost amid the great variety of other forces and causes which alter the state of our atmosphere. That her increase or decrease has no influence upon either men or animals, or upon the germination of seeds, the rapidity of their growth, or upon their quality.

If the prejudice which I have been combatting had no injurious influence upon practice, it would not have deserved the notice I have given it; but wherever it exists, the stargazer will often find it necessary to intercept the most urgent business for the purpose of seizing the lucky moment when the moon and stars shall favor efforts which might be made with equal effect at times of leisure. Besides, the farmer who places his dependence on the operation of causes beyond his control, will naturally undervalue the advantages of exertion. Such is the tendency of rules which inspire hopes of success in the business of husbandry, from any other source than our own watchful industry.

Arator.

Woodford's Early Green Marrow Pea. By Edward Sayers, Gardener to Dr. Hosack. [Communicated for the New-York Farmer and American Gardener's Magazine.]

In compliance with your request, I have fully tested the qualities of the above pea, and herewith send the result, which you will place before the public if you think proper.

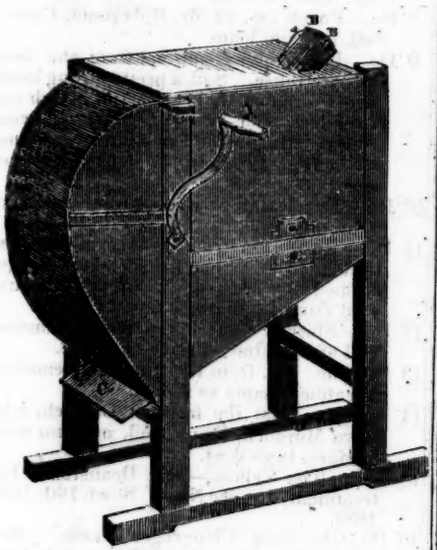
The peas were sown on a gravelly soil, in connection with the early *Nonpareil* and *Imperial blue*; they had no particular attention in culture, which perhaps is the better way of testing all new varieties of vegetables. The Nonpareil was fit for table about six days before the Marrow; and the Imperial did not come to any perfection, which is often the case when sown late. The Marrow appears to have all the good qualities of a

superior pea, and to be particularly adapted to this climate. The pea with me is a good bearer, the *pod* setting mostly in pairs, and containing on an average from 6 to 8 peas in a *pod*, of a good size, and fine bright green—when boiled, of a very *superior* flavor. The principal excellence of this pea appears to be in the vine, which is more hard and solid than the Imperial blue, and consequently more capable to bear the sudden changes, and withstand the mildew which generally attacks the tender peas late in the season. I hope in future to test more of the qualities of this vegetable, and am of an *opinion* it will be generally cultivated, and ranked among the best peas known for culinary purposes. Yours, respectfully,

EDWARD SAYERS.

Hyde Park, July 16, 1834.

Corn-Shellers, Corn-Crackers, and Turnip-Cutters. [Communicated for the New-York Farmer and American Gardener's Magazine.]



Among the machinery which mechanical ingenuity has furnished the farmer, to expedite farming operations, is the Corn-Sheller. They are constructed to shell either one or two ears at a time. They require two persons, and will shell perfectly clean, and nearly as fast as one can put in the ears; consequently the number of bushels in a day must be very considerable. Some of them, as in the present drawing, has the shelling apparatus incased, to prevent the corn from being scattered. B B are the two openings into which the ears are dropped; A, the turning crank; C, the opening at which the corn comes out. The prices for substantially built machines vary from 8 to 15 dollars.

H. Huxley & Co., 81 Barclay street, have affixed to the Corn-Shellers a simple apparatus for cutting turnips and potatoes for stock. They are also appending one for cracking the corn.

Bone Dust as a Manure. By the EDITOR.

We learn from Capt. Ogden, and Mr. Hornby, that the demand for bone manure has very much exceeded their ability to comply. Early in the spring, Mr. Hornby had so large a quantity on hand, that he expected to be under the necessity of exporting it to England; but the farmers, on exhausting the stock of Capt. Ogden, were directed to Mr. H. So eager were some farmers to insure a supply in future, that they wished to make an exclusive purchase of all he could grind for a considerable period. Mr. H. informs us, that a great portion of those who purchased his bone said they were induced to try it from what they had read of it in the New-York Farmer.

The question may arise, how came Capt. O. to have a great demand for his bone, while Mr. H. had comparatively none? Simply because, in our editorial remarks, we principally referred to Capt. O.'s establishment, and because, in compliance with our request, he made several communications in the Farmer, in reference to its advantages. We mention this fact, to show that it is the interest of all those farmers, gardeners, manufacturers, and mechanics, who have any thing to sell, or who wish to acquire a reputation, which to many is their only property, to write for the periodical press. Many instances of this kind have come to our knowledge. Mr. H. has a stock of bones that will require more than a year to grind, at the rate of about 125 bushels per day. Capt. Ogden's mill will grind three times this quantity.

Considering the increased importance of bones, every person should exert his influence to have them saved and collected. We should suppose country merchants, in some sections of the country, might encourage this species of economy in their neighbors. The price of unground bones is from 6 to 12 cents per bushel.

Mr. Hornby has furnished us with the following testimony, in favor of bone manure.

Middleham, Elizabethtown, N. J., 3d mo., 31, 1834.

MR. HORNBY,—Sir: In reply to your note, requesting information as to the result of my use of bone dust manure in the past year, I have but few facts from which conclusions may be drawn, but such as they are, I send them with pleasure for your service.

On one acre, after early potatoes manured from the stable, I ridged the land, and drilled in ruta baga seed, together with eighteen bushels of bone dust. The growth was particularly luxuriant, the tops being interlaced, though the ridges were three feet apart. Produce, nearly five hundred bushels per acre, of good quality and large size, weighing from four to six pounds each, whilst one, a little more bulky than his fellows, reached six pounds and a half.

One acre in another field, a fallow following pasture, and unmanured for many years, produced bulbs of 3 inches diameter on either side of one unmanured ridge, where none exceeded one inch diameter, except this one ridge, all the rest were drilled with bone dust at the rate of eighteen bushels per acre.

All my land, though a mellow light loam, has been reduced to a state of poverty, by close cropping without a sufficiency of manure. I am yours, respectfully, OBH. ELLIOT.

May 27th, 1834.

The oats where the bone dust was on the corn are more than twice as big as on the other manure. It shows very plain on the grass, wheat, and rye. GEO. BARNES.

AMBOY, 3d June, 1834.

SIR—The middle of last week I sent you an order for bone dust: not having heard from you since, I take the opportunity of a private conveyance to repeat the order. You will please send me by the steamboat Napoleon, as soon as you conveniently can, one hundred bushels of bone dust of the fine kind, writing me the day before sending. I will thank you to have it sifted something finer, as the last had rather too much coarse in it, and to have it put up in strong bags, as the last were something torn when they were landed from the steamboat. I find the bone dust good on oats and grass. Your immediate attention to this will much oblige your obedient servant,

JOHN R. WATSON.

Mr. John Hornby.

South Florida a Residence for Invalids. By Doct. M'KINNEY. [For the New-York Farmer.]

MR. FLEET,—The experience of ages has ever shown the advantages of temperate latitudes in pulmonary disease; and even to the present day, the medical faculties, both of Europe and America, concur in the same fact. In our own country, from the constant atmospheric vicissitudes, we are, perhaps, more exposed than any other nation to this malady, and the records of mortality in our large commercial cities but too plainly show the little efficacy of the healing art in arresting the progress of this enemy to human life. Even the expensive and painful voyages to the South of Europe have not exerted in general a salutary influence; hence many forsake their friends and firesides only to languish a few months in the ever changing climate of Italy or France, and then sink into an untimely grave! In our southern and south-western states, the same inconvenience exists; and although the cold may not be excessive, yet all the evils of the coldest winter are produced by the sudden mutations of a humid atmosphere from heat to cold. The West India Islands are more favorable to invalids, if a proper site be selected, but the expenses are such that few are able to support them. In addition to this, the difference of language and religion, and the great prejudice that exists there against all hectic patients, renders a residence there, if not impracticable, at least disagreeable. Hence it frequently happens, that the poor victim, tired and disgusted, leaves his sunny abode in the month of April, and arrives at home at the most precarious season of the year, when he soon sinks under a renewed attack of his disorder. From the many difficulties attending a voyage to the West Indies, many are induced to defer till they have tried all other remedies, neglecting the only probable mode of obtaining relief. Thus, when death is at the door, and there is no hope of escape, the emaciated victim is hurried away to a southern clime, only to languish out a few days of suffering and sorrow, to sink into the silent tomb! It is then worthy of serious inquiry whether we have in our own country a situation suited to sufferers of this description, where they may enjoy all the advantages of the balmy equable atmosphere of the tropics, without the disadvantages of a residence in a foreign land. St. Augustine has for some time been a resort for invalids, but its humid and variable atmosphere must ever prove injurious rather than beneficial, and all middle Florida is in a great degree liable to the same inconvenience. South Florida alone, in all our vast country, is free from the objection of a humid and variable atmosphere. By South Florida, I mean that part of the peninsula south of 27°, including the Keys on the Florida reef, Cape Romano, Cape Sable, and Cape Florida. Of Cape Sable and Cape Romano I know nothing, having never seen them. The Keys are not the best residence for invalids, on account of their exposure to

the winds, but even there, (in Key West and Indian Key, which are inhabited,) many have been benefitted by a winter residence. Frosts are unknown, and atmospheric changes are for the most part gradual.

I wish to call the attention of the public more especially to the Cape Florida settlement, as a retreat for invalids. It is situated in about 25° 30′ N., has a beautiful shoal bay of salt water in front. The Miami river enters the bay in the midst of gently rising lands, without marshy shores. Its current glides gently over a bed of rocks, and the shores in many places are of the same durable material. The bay, and consequently the main land, is sheltered from the north-east wind by a tongue of timbered land projecting into the sea, and the settlement is sheltered on the north by a thick growth of trees. The water of the river above tide-water is clear, sweet, and wholesome; they abound in fine fish for angling, and the banks are clothed with the perpetual verdure of spring, while fruit succeeds to fruit the whole year. Limes of a good quality are abundant, and many tropical exotics are now cultivated, the most delicate of which flourish well. But what is of more importance to the invalid is its dry, mild, and temperate atmosphere. During the winter months the variation of the thermometer is a mere trifle, and the degree of cold never so great as to be disagreeable. There is but little rain, not more than sufficient to keep down the dust. In many tropical regions the thermometrical variation is much greater than it is here; even in the island of Cuba it is more variable, on account of the elevation of its central range of mountains. This section of Florida is very narrow from sea to sea —constantly fanned by gentle breezes; there are no mountains in its vicinity, yet the elevation is sufficient for all the purposes of draining. Again, the north winds sweeping for many leagues the heated gulf stream, reach the land deprived of their chilling frosts, and prove refreshing breezes rather than destructive gales. The sea-breeze, which on many tropical shores proves so obnoxious to the health of invalids, is here so gentle as to cause but little inconvenience.

There are, however, difficulties attending Cape Florida as a retreat for invalids: there are no houses suitable for their accommodation. The inhabitants are chiefly pioneers, who depend upon fishing and hunting for a precarious existence. They have neglected all improvements except those absolutely necessary for their own families. Agriculture is almost entirely neglected, and the little bread used is chiefly brought from Key West. The entrance to Cape Florida is difficult, except to skilful pilots; but this could be remedied by going to Key West, and where the entrance is easy, and thence in a steamboat to the Cape. It is to be hoped that something will soon be done to smooth existing difficulties, and render the place comfortable for those who sojourn there.

Richard Fitzpatrick, Esq. an enterprizing citizen of Florida, is actually engaged in clearing and stocking a farm at the mouth of the Miami river, preparatory to the erection of suitable buildings for the reception and accommodation of all who may be disposed to pass the winter in these sunny regions. Mr. F. possesses ample means, and is owner of the lands he occupies. It is probable he will soon complete his undertaking.

There is still another consideration which has struck me as important: Cape Florida is healthy in summer as well as winter; hence, those invalids who do not possess the means of passing the winter in the south, and the summer in the north, may emigrate to Florida, and become permanent citizens, thereby conferring a benefit on the country; while they themselves are benefitted by the country. Government lands have not yet been surveyed, hence none can be obtained, except Spanish grants, the titles to which have not yet been fully established. This prevents emigration, and tends to keep this territory in a comparative state of imbecility. To place these lands in market would be the means of increasing the population of Florida, of adding many thousands to the public funds, and of aiding the great interests of humanity and benevolence.

New-York, July 12, 1834.

NEW PUBLICATIONS.

Report of the Exhibition of Agricultural Productions, &c. at Stirling, at the premises of W. Drummond & Sons, Nursery and Seedsmen, from November 16, 1832, till March 16, 1833; with communications on the following important subjects, viz.: Wedge and Tile Draining; Thorough Drainage and Deep Ploughing; Bones as a Manure; the Improvement of Agricultural Plants. Stirling: Published by W. Drummond & Sons. 1833.

This is a pamphlet of 74 pages. It is so replete with useful information to the practical farmer, and exhibits so many facts from which important deductions can be drawn, that we conclude to publish the greater part in the columns of the Farmer. We recommend it to the especial attention of those who take an interest in agricultural fairs and exhibitions. Those who are desirous of aiding our intended Fair, at Harlaem, next October, will find information relative to the articles suitable for exhibition, and as samples for the sale of quantities.

Before entering upon the details, it may be proper to remark, that any Report, however minute, must necessarily convey but a very inadequate idea of the *effect* produced by the whole number of specimens, from so many different quarters—forming an extended, and we may say splendid, vista—in orderly arrangement—contributing, in separate or collective merit, towards the general stock of agricultural information and intelligence.

The arrangement, so far as practicable, was in classes of species and varieties, in order to aid comparison. At one end of the room, the different sorts of grain, in sheaf, were disposed with a view to rural effect; with a portrait of the Right Hon. Sir John Sinclair, Bart.,—a mark of respect to one who has so long been the zealous and efficient promoter of agriculture, and who has taken a lively interest in this exhibition. *Bouquets* of grain and of grasses, interspersed along the ranges, imparted a pleasing and exhilirating air to the whole; and, altogether, showed that the exhibition of agricultural seeds and plants may, even to the general visitor, be rendered highly attractive.

It is not the province of the reporters to draw comparisons, or give opinions on individual specimens—it is only in the exhibition room, where a superior article will best meet with its meed of approbation, and where even an inferior may give rise to the most profitable discussion.

The following classes are in the order of the explanatory circular issued early last season:

TURNIP.

1 Swedish—Purple top, from the farm at Culcreuch, A. G. Speirs, Esq. Soil, light loam. 24 field carts farm yard dung, per acre.

2 Do.—do. and green top, from the farm at Buchanan House, grown on an inferior turnip soil. 40 field carts farm yard dung and 4 chalders lime per acre before drilling. Produce, 39 tons bulbs per acre.

3 Do.—Purple top, exhibited by Mr. M'Nab. Cowie. Soil, light hazel loam. Manure, farm yard dung.

4 Do.—Purple and green top, by Mr. Smith, of Deanston, grown in the field on Deanston farm. Extent, 4 acres. Soil, a medium loam. First crop after draining and trench-ploughing. 36 field carts farm yard dung per acre, put into drills. Sown 2d June, 1832.

5 Do.—Purple and green top, by Mr. Moubray, of Cambus, grown on a clayey loam or haugh land. 24 tons dung per acre. Produce, 42 tons bulbs per acre.

6 Do.—Purple top, from the farm at Blairdrummond, grown on a thin stratum of black muirish soil, of open texture, incumbent on irony gravel. 24 carts farm yard dung per acre.

7 Do.—Green top, by Mr. Mitchell, Allon. Soil, medium loam

8 Do.—Purple top, by Mr. Robertson, Cowie. Soil, medium loam.

9 Do.—Purple and green top, from the farm at Keir House. Soil, a pretty strong loam, furrow-drained 16 feet apart in March and April last, after two oat crops following old ley. Manure, 30 carts farm yard dung per acre. Produce, 37 tons bulbs per acre.

10 Do.—Purple and green top, from Carmuirs farm, near Falkirk.

11 Do.—Purple top, from the farm at Polmaise House. Soil, strong brown clay, wedge-drained 13 years ago. 26 single carts farm yard dung per acre.

12 Do.—Shirreff's purple top, from Polmaise. Soil and treatment, same as above.

13 Do.—do. do. from the farm at Deanston. Treatment same as No. 4.

14 Do.—do. from the farm at Coldoch, John Burn Murdoch, Esq. Soil, medium loam. Manure, bone dust.

15 Green Top Yellow—from Deanston. For treatment, &c. see No. 4. Sown 16th June, 1832.

16 Do.—do. from Clangregor Castle. Soil, stiff loam, rather elevated, parallel drained 8 yards apart. Manure, 25 bushels bone dust per acre—no lime or other manure. Produce, average per Scotch acre, 32 tons 14 cwt. of bulbs, and 10 tons 11 cwt. of shaws or tops.

17 Do.—do. from Daldorch farm, Catrine Bank, Ayrshire, grown on strong clay soil, with mixture of peat moss, furrow-drained and deep ploughed. 30 field carts of farm yard dung per acre. Sown middle of June.

19 Do.—do. from Cambus. Soil a clayey loam. 24 tons dung per acre. Produce, 45 tons per acre.

23 Do.—by Mr. Callender, Northfield. Soil, dark loam. Situation high and exposed. 5 chalders lime per acre before drilling. 15 tons farm yard dung, put into drills. Sown 16th June. Produce per acre, 29 tons. Stored 5th November, 1832.

26 Do.—from Keir. Treatment, vide No. 9. Produce, 40 tons bulbs per acre.

28 Do.—from Lanrick farm, near Dunblane. Soil, sandy loam. Manure, a compost of 12 carts dung, 20 bolls lime, and 26 carts earth, per acre, made up three months previous.

31 Do —from Boquhan.

32 Do.—from Carmuirs farm, near Falkirk

33 Red Top Yellow—from Deanston. For treatment, see No. 4.

34 Do.—do. from Buchanan. For treatment, see No. 2. Produce, 36 tons per acre.

35 Do.—do. from Cambus. Soil, a clayey loam. 24 tons dung per acre. Produce, 40 tons per acre.

36 Do.—do. from Blairdrummond, grown on a thin stratum of black muirish soil, of open texture, incumbent on irony gravel. 24 carts farm yard dung per acre.

44 Dale's Hybrid, (betwixt the Swedish and White Globe) from Doune Lodge. Soil, light deep loam. Manure, cow dung.

45 Do.—do. from Gartur. Soil, light loam.

46 Do.—do. from Keir. Soil, stiff loam.

47 Do.—do. from Clangregor Castle. Soil, stiff loam, rather elevated, parallel drained 8 yards apart. Manure, 25 bushels bone dust per acre—no lime or other manure. Produce, per Scotch acre, 36½ tons bulbs, and 12½ tons of shaws or tops.

48 Do.—do. from Deanston, grown in the field on Deanston farm, after mangle wurzel, ploughed up in spring, 16 inches deep—extent 100 yards of a drill. 20 tons farm yard dung per acre. Soil, medium loam—sown 16th April, 1832.

49 Do.—do. from Polmaise. Soil, stong brown clay. 26 carts farm yard dung per acre—lime having been previously applied.

54 Cream Colored—from Culcreuch.

55 Do. from Deanston.

56 Golden—from Mr. Mitchell, Alloa. Globe shaped and gold color.

57 White Globe—from Mr. William Taylor, Lanrick of Clangregor. Soil, high lying and muirish. Manure, 20 bushels bone dust per acre.

58 Do.—from Mr. Callander, Northfield. Soil, dark loam, situation high and exposed, 5 chalders lime per acre, before drilling—15 tons farm yard dung, put into drills. Produce, 30 tons bulbs per acre.

59 Do.—from Clangregor Castle, grown on a stiff muirish soil, but parallel drained 8 yards apart, the land previous to draining not worth 12s. 6d. an acre. 18 single carts of farm yard dung and 4 chalders lime per acre—the lime applied before making up the drills. Average weight of produce per acre, 39 tons 13 cwt. of bulbs, and 7 tons 13 cwt. of shaws or tops.

60 Do.—from Keir. Soil, a pretty strong loam—furrow drained 16 ft. apart in spring last. Manure, 50 bushels bone dust per acre. Produce, 48 tons bulbs per acre.

61 Do.—from Keir, grown on the same field as the last. Manure, 30 carts farm yard dung per acre. Produce, 46 tons bulbs per acre.

63 Do.—from Blairdrummond, grown on a thin stratum of black muirish soil of open texture, incumbent on irony gravel. Produce, 36 tons bulbs, and 10 tons 12 cwt. shaws or tops per acre.

73 Green Top White—from Doune Lodge. Soil, light deep loam. Manure, cow dung. Crop superior.

74 Do.—from Lanrick farm, near Dunblane. Soil, sandy loam. Manure, a compost of 12 carts dung, 20 bolls lime, and 26 carts earth, per acre, made up 3 months previous to using.

75 Do.—from Keir. Soil, a pretty strong loam, furrow drained, 16 feet apart, in spring last. Manure, 50 bushels bone dust per acre. Produce, 40 tons bulbs per acre.

78 Red Top White—from Cambus. Soil, clayey loam. 24 tons dung per acre.

88 A collection of turnip, *medium size*, consisting of all the above mentioned sorts, exhibited by Messrs. Drummond from their proof lots. Soil, light sandy loam.

The fine appearance of the turnip department evinced the great attention bestowed on the cultivation of this valuable root; and also shewed that other qualities, than mere size in the selection, had been kept in view more generally than last season. We then, in our Report, noticed, as some of the good qualities, along with sufficient size,—"to be well rounded, with a single tap root, the neck small, and placed on a proper convexity for throwing off the rain and moisture." The field for improvement is ample and interesting, and in order to assist, as far as we can, from the specimens before us:

By repeated trials, (measuring the water displaced on immersion,) sound Green Top Yellows, of 7 or 8 lbs. weight, gave, as their highest average, 32 cubic inches per lb., which may be assumed as a medium standard of solidity, or density. Now, by dividing the number of cubic inches, contained in any root, by 32, (the remainder being halved for 16ths, or ounces,) the quotient gives the number of pounds and ounces that should be, of the standard solidity; the actual weight of the root will then indicate the solidity, which will either be at, above, or below the standard—as the numbers of the weight are equal, or greater, or less than the numbers of the size.

We have thus a very simple scale, which, compared with the weight, affords a more just criterion of value, and at the same time a correct idea of their sizes.

The following are selected from different soils and of various weights, including two of the heaviest of each variety:

	Should weigh by size and standard.		*Actual weight.*	
	lb.	oz.	lb.	oz.
Swedish—Buchanan,	11	2	13	12
Do. Mr. J. M'Nab, Cowie,	10	5	13	8
Do. Deanston,	9	1	11	0
Do. Mr. J. Robertson, Cowie,	7	6	9	0
Do. Polmaise, medium size,	5	8	6	4
Do. (Shirreff's) do. do.	4	12	5	7
Green Top Yellow—Catrin Bank,	16	0	15	0
Do. Cambus,	15	0	14	0
Do. Do.	18	0	13	6
Do. Buchanan,	10	8	10	0
Do. Carmuirs farm,	6	6	6	10
Red Top do.—Doune Lodge,	12	0	12	10
Do. Buchanan,	11	8	11	12
Do. Deanston,	10	0	10	8
Do. Cambus, med'm size	8	0	8	6
Dale's Hybrid—Cambus,	13	12	12	0
Do. Buchanan,	12	8	11	8
Do. Deanston,	9	8	9	0
Do. Mr. Hudson,	8	4	7	12
White Globe—Keir,	20	8	15	8
Do. Do.	19	0	15	0
Do. Clangregor,	16	0	12	8
Do. Do.	12	12	12	0
Do. Mr. Lochy,	9	13	9	8
Do. Lanric farm,	8	8	8	4
Red Top White—Rednock,	16	8	13	0
Do. Mr. Mitchell,	14	8	12	0
Do. Blairdrummond,	13	8	12	0
Do. Polmaise,	8	7	8	0
Green Top White—Cambus,	12	0	11	0
Do. Lanrick farm,	11	0	10	8
White Tankard—Keir,	16	0	14	0
Purple do. —Northfield,	12	10	11	8

From the above test, the superiority of the Swedish is very decided, and contrary to other sorts, greater size indicates also greater solidity; taking into view the comparative nutritive qualities stated at the end of this section, it will be seen that the heaviest Swede is at least equal to one and a half of the heaviest Globe.

The Red Top Yellow appears to deserve the second place, being above the standard. A gentleman who cultivates extensively, told us, the other day, that his sheep always gave it the preference next to Swedish—perhaps it may not be unwise to consult that sagacious animal a little farther on this matter. The Green Top Yellow is well known as a good turnip, rather excels the Red Top Yellow in size, but falls off a little, at least in light soils, where it exceeds the weight of 10 lbs.

Dale's Hybrid is of good size, and though the shape varies a little, is always convex at the neck, which is perhaps its principal merit. In some instances the produce was rather greater than the green top yellow, but does not seem to be more solid. Purple Top Swedish, raised at Polmaise, from selected bulbs, and Shirreff's Purple Top Swedish, are both highly improved in form and texture. The White Globe has rather the advantage of the other whites in density, and also in shape.

Clay soils are found to produce roots of more equal shape and firmer texture than light soils; the Green Top Yellow, from Catrin Bank, is a fine instance of this. Lime, applied either previously or in compost, is considered by some to have the effect of lessening the proportion of top, or leaves, to the root.

POTATOES.

Pink-eyed Kidney—by Mr. Speirs, of Culcreuch, of superior flavor, not subject to disease, having been above 20 years on the same farm, without degenerating. Produce of 8 falls, 6½ bolls, Stirlingshire measure. Soil, loam of a medium texture.

Linen Draper—Mr. Ebenezer Allan, Spring Kerse, from clay soil. Manure, coal ashes. Produce, from 12 pecks, 23 bolls.

Do.—Mr. J. Hutcheson, Gargunnock. Light soil. Manure, woollen rags. Produce, from 14 potatoes, 14 pecks.

Do.—Mr. Miller, Torry; sandy loam. Mr. Jas. Faichney, Ardoch; stiff loam.

Buff—Mr. Miller, Torry; sandy loam. Mr. A. Sinclair, Muthill; medium loam. James Noble, Esq.; from carse soil at Corntown.

A collection of potatoes by Messrs. Drummond—the results of a comparative trial under equal circumstances on the same lot. Soil, light loam—planted April 30, raised October 3, 1832.

Late Sorts.

	Four yards of a drill weighed
Buff, flavor superior, mealy,	41 lb.
Irish Blue, do. do.	36
Red French Kidney, good, waxy,	35½
Pink-eyed Kidney, superior, mealy,	29
Perthshire Red, flavor fine, waxy, but firm,	27
Guernsey Kidney, superior, mealy,	21
Red and White Kidney, good, mealy,	21
Black, waxy,	18½
Yam, used chiefly for cattle,	18½

Early Sorts.

Taylor's Fortyfold, superior, very white and mealy,	40½
Miller's Early, flavor good,	30½
American, good, mealy,	25½
Ross's Improved, superior, white and mealy,	24
Round Ash-leaved, very early, waxy,	12
Ash-leaved Kidney, good, mealy,	10½
The Calicoe failed from curl.	

Irish Blue, whole produce exhibited in hampers, being the results of an experiment on the cultivation of potatoes by Messrs. Drummond, viz.:

No. 1.—On the plan recommended by Mr. Knight, of Downton. The tubers were whole, weighing half a pound each, and were planted at the distance of 6 inches, in rows, which were 4 feet apart, and lying from south to north.

Forty square yards required of seed 90 lb.—produced 364 lb.; being per acre, of seed, 136 bushels, and of crop, 550 bushels. Net increse, 414 bushels.

No. 2.—On the same plan, with the exception of the tubers being planted at 9 inches, instead of 6 inches in the row.

Forty square yards required of seed 60 lb.—produced 326 lb.; being per acre, of seed, 91 bushels, and of crop, 493 bushels. Net increase, 402 bushels.

No. 3.—On the same plan, with the exception of the sets being cut of the common size.

Forty square yards required of seed 6 lb.—produced 276 lb.; being per acre, of seed, 9 bushels, and of crop, 417 bushels. Net increase, 408 bushels.

No. 4.—On the plan of sets cut of the common size, and planted 6 inches separate, in rows 2 feet apart.

Forty square yards required of seed 12 lb.—produced 376 lb.; being per acre, of seed, 18 bushels, and of crop, 568 bushels. Net increase, 550 bushels.

Grown on the same lot, under equal circumstances; planted May 28; raised October 12. Soil, a brown loam. Manure, ¼ ton farm yard dung to each 40 square yards, put into drills, being at the rate of 30 tons per acre. In the calculations, the acres are imperial, and the bushels 80 lb. each. The plants of Nos. 1 and 2 were highly vigorous, and early in advance of the others; their tubers were not over large, and contained a greater proportion of small. The plants of No. 3 gained fast in autumn, and produced by far the largest tubers, but did nol ripen so well; those of No. 4 were most equa sized.

The above experiment was undertaken at the

request of Sir John Sinclair. The results, although we could not overlook so *material* a part as the amount of seed required by the whole sets, are rather different from what we had ourselves anticipated in summer; but the whole was conducted as scrupulously exact as possible, and they are here given with the utmost deference and respect to Mr. Knight.

(*To be continued.*)

Alphabet of Scientific Gardening for the Use of Beginners. By JAMES RENNIE, M. A., Professor of Zoology, King's College, London. 18mo. pp. 120, William Orr, London, 1833. [Continued from page 204.]

PHILOSOPHY OF GARDEN PROCESSES AND OPERATIONS.

The facts and inferences detailed in the preceding may be taken as a leading portion of the science of gardening; and the beginner, who has mastered these, will seldom find himself at a loss to understand, in some measure at least, the causes and consequences of most of the phenomena attending the growth of plants. It may be well, however, to take brief notice of some of the chief processes and operations, with a view to explain their scientific principles individually, either derived from what has been already stated, or from such as I have not had hitherto a fit opportunity to introduce. I may be allowed to premise, that I do not here intend, nor have I room, to give minute practical directions, but to try to arrive at reasons and causes for what is practised, and hence to deduce the principles upon which right practice ought to be founded. It will conduce to regularity, and aid the memory, to begin with the preparation of the soil, and proceed with sowing, and the operations consequent thereupon.

Scientific Principles of Manuring.—As the chief food of plants consists of carbonic acid gas, and humic acid mixed with water, it is clear that every sort of manure, whether it be simple, or mixed with other substances in form of compost, must be tried and judged, in the first place, by the proportion of carbonic acid gas and humic acid which it contains, or may evolve after it has been applied; and, in the second, by the quantity of water which it is able to take up and retain. This second test alone must not be trusted to, otherwise bog earth, a very sterile substance, in its undecomposed state, might be decided to be the best of all manures; nor will the first test always answer, otherwise chalk, (technically carbonate of lime,) would appear to be an excellent manure; and so it might be under peculiar circumstances, and would be always, if it could be brought to take up and retain enough of water to dissolve a portion of it, which it can only do by means of the humic acid. By using Mr. C. Johnson's apparatus, already described, the capacity of any manure to take up and retain water may be easily ascertained. The results of the author's experiments upon various manures are contained in the following summary:

	Parts of Water.
100 parts of horse dung, dried in a heat of 100 degrees, took up in three hours, in moist air at 62 degrees,	145
Ditto rotted tanner's bark, treated in the same way, but the air at 66 degrees,	145
Ditto fresh tanner's bark	115
Ditto cows' dung	130
Ditto pigs' dung	120
Ditto sheep's dung	81
Ditto pigeon's dung	50
Ditto soot, with the air at 68 degrees,	36
Ditto burnt clay	29
Ditto coal ashes	
Ditto refuse common salt, with the air at 60 degrees,	49½
Ditto crushed rock salt	10
Ditto lime partly carbonised	11
Ditto gypsum	9
Ditto chalk	4

Again:

	Parts of Water.
100 parts pigs' dung, dried at 106 degrees, and then moistened with six parts of water, in order to be dried again in the same way, required	136
Ditto horse dung treated in the same way	90
Ditto common salt	75
Ditto soot	75
Ditto chalk	29
Ditto gypsum	18

These instances will be of use in estimating the qualities of a few of the principal manures; but it is also of importance to ascertain the state in which manures may be most advantageously applied, as much error and wrong management prevail upon this subject.

The Fermenting of Manures.—It is the common opinion, that every sort of dung, when well rotted and reduced to a uniform dark brown mass, similar to fresh peat, so that it can be cut with a spade, is more valuable that when fresh and mixed with straw and other litter. There can be no question of this opinion being correct, though the doctrine at present held in books seems to oppose it, upon principles deduced from the experiments of Sir Humphry Davy, made before the discovery of the effects of humic acid. The two tests of the quantity of carbonic acid gas contained in rotted and in fresh dung, and the capacities of each for taking up and retaining water, would at once lead to the correct view of the subject, independently of ascertaining the proportion of humic acid.

With respect to water, there can be no question that rotten dung is very much superior, in imbibing and retaining it, to what is fresh, unfermented, or beginning to ferment, as may be easily ascertained in the way already described by those who doubt the fact. With respect to carbonic acid gas, humic acid, and the minor materials of the food of plants, there can be as little doubt of the superiority of rotten dung, which is in fact in a state very nearly approaching to the best leaf mould or virgin loam, and though a weighed quantity of fresh dung certainly will yield more carbonic acid gas than when this same quantity is allowed to ferment and rot, in consequence of much of it being given off during these processes, yet the weighed quantity of fresh dung will bear no comparison in this respect with the rotted dung. The quantity of humic acid is very considerably greater in rotted dung.

Here then is the state of the question, which is so far one of economy, that there is a certain loss sustained by the dung during fermentation and rotting, in the same way as there is a loss sustained in roasting a piece of beef; but nobody, I think, except an Abyssinian, who likes raw beef cut from a living ox, would try to economise provisions by not roasting his beef, any more than a gardener would in not rotting his dung. The rotted dung accordingly, like roast beef, appears, from what has been now stated, to be altogether of superior quality as food, on a comparison of equal weights of it and fresh dung, particularly with regard to humic acid.

The recent practice of covering up fermenting dung with earth is founded on a smattering of chemistry, without a sufficient knowledge of its principles, for the earth can no more confine the carbonic acid given off during the fermentation of the dung below it, than a gauze balloon would confine gas enough to carry it up into the air; though this covering of earth will undoubtedly check very violent fermentation by partly keeping out the atmospheric air and rain water, the oxygen in either or both of which is indispensable to the process, it being this oxygen which forms the carbonic acid gas by uniting with the carbon in the dung.

Fresh dung, if, like that of rabbits, pigeons, poultry, and sheep, it be somewhat difficult to dissolve in water, will prove injurious, in consequence of the portion dissolved being too acrid, from containing a great quantity of ammonia; and hence it must either be well rotted, with the loss of more than half its substance, or so broken down and mixed with sharp sand, or diffused in water, as not to concentrate its ammonia or other acrid principles, which might otherwise *burn* the plants, as it is not inappropriately termed. For the same reason, the drainings of dunghills and urine ought always to be diluted with at least three-fourths of water before being applied. In this way they become excellent manures, from containing so large a proportion of the important principle of humic acid.

Composts.—It having been found that the most fertile soils are those which contain a mixture of various ingredients, the conclusion was obvious, that soils, artificially composed of the same or similar materials, would prove similarly fertile. This gave origin to the various compositions termed composts, whose value must of course be tried, like that of individual manures, by the two leading tests of their proportional quantity of carbonic acid gas and humic acid, and their capability of taking up and retaining water.

Compost heaps, or pies, must be managed on the general principles of chemistry already detailed, particular care being taken to guard against loss. Lime, for example, if mixed in a compost heap with rich old soil, or with rotten dung, will take up and render useless the carbonic acid gas which they contain, and can only be used where there is much woody fibre difficult to be broken down. Bog earth, mixed with fermenting dung, forms a good compost; as does also all vegetable refuse, such as weeds, young shoots of trees, and turfs from hedge-banks or road-sides.

Seasons of Manuring.—Manures, spread upon a garden in autumn or winter, are in part either washed by rains too deep into the soil for the roots to reach them, or their best materials are carried off into the air, by the evolution of their gases, before they can be taken up by the roots; for it is to be recollected that, though plants do take some food in winter, as is proved by the buds withering when the roots are destroyed, this quantity is too small to be calculated upon in manuring. The time then that manure is of the greatest advantage is on the commencement of growth in the spring, when the roots are most active in feeding and in lengthening out, in order to reach the food diffused in the soil which may be beyond their immediate reach.

If it be inconvenient in every case to arrange the practice of manuring with the ascertained principles of its utility, it ought to be so applied as to sustain the least loss of its nutritive matter. To spread out manure, for instance, in dry weather, or bright sunshine, as I have seen done, must be to certain loss. I observed in Switzerland, that when convenience led the farmers to cart out their manure in dry clear weather, they had women employed to pile it up in compact, or rather high heaps, with a very small base, to prevent loss by drying. To wheel out manure in winter, and leave it in heaps, is bad, from giving too much to the spot where the heap is. Nicol says the workmen had better be sent to bed.

Scientific Principles of Digging and Raking.—It must be evident that a soil having a hard crust on the surface will neither admit water and air, nor allow the water and air already below the surface to escape and circulate freely—circumstances indispensable to the healthy growth of plants. It is with such views, as well as to render it more easy for plants to extend their roots in search of food, that digging is performed. The extraordinary effect thereby produced is strikingly shown by the experiments of Mr. Curwen, who found that the quantity of water which rose in the form of vapor from an undug surface was exceedingly small, whereas from an acre well labored there was no less than 950 pints carried off into the air in one hour.

So great a loss of water might, however, be in many gardens injurious, by rendering the soil too dry, and, in that case, it might be useful to employ the roller when the plants would admit of this, or place fern leaves, or the like, so as to prevent too rapid a loss of water. Raking very smooth will have a similar effect, by diminishing the extent of the surface ex-

posed; and hence, where there is too much moisture, smooth raking must be bad practice, and rough digging or trenching the best for sending off the superabundant moisture into the air.

When a soil is what is popularly termed *sour*—that is, too moist in consequence of water lodging in it without free circulation—it is often advantageous to turn it over by repeated rough digging, going as deep as it may be advisable, according to the quality of the under soil. This indeed is always of importance in regulating the operation of digging; for otherwise, if the upper soil is rich in the materials of the food of plants, it may be turned too deep for the roots to feed upon it, while if the under soil is the richer in the food of plants, it will be useful to bring it up from some depth to the surface. The testing of the soil to be dug, at various depths, will therefore be always important before proceeding. Dr. Home, as we have seen, found barren under-soil, or *till*, usually impregnated with iron.

Action of Frost on Soils.—Very erroneous notions, it would appear, are commonly held respecting the action of frost upon soils, which it may be well to examine here. Even scientific men have concluded that frost, by crystallising the water retained in clay soils, tends to loosen it by separating the particles: all which seems very plausible, but plain facts and experience demolish the theory. Instead of being expanded, and the particles separated from the swelling of the ice accordingly, it is found that wet clay squeezes out the water to the surface, while the particles of the clay become more tenacious, solid, and close; the process being similar to what takes place upon freezing salt dissolved in water, in which case all the salt is forced either into the centre, or into separate solid masses surrounded by ice. This view is farther proved by the well known fact of newly-transplanted strawberries, and the smaller pebbles on a garden walk being loosened and thrown out by the frost squeezing the soil more firmly around their lower bevelled parts, from the action of which they escape gradually upwards; whereas the larger pebbles on a gravel walk will, in slight frosts, be seen to sink a little, from the pressure caused by the frost not being below them.

It will hence be injudicious to rough dig a stiff or watery clay soil with the view of mellowing it by frost, and still more to expose clay intended for composts to freezing. An ample dressing of fresh farm-yard dung, containing much straw, or of wood or coal ashes, will answer much better with such a soil, from the straw facilitating the introduction of air, and the circulation of water, and the ashes separating the particles of clay. Dressing clay with sand, at least in any small quantity, which has been recommended, will only tend to stiffen the clay, as must be evident from the processes of brick and porcelain making, in which sand is indispensable to mix with the clay to harden the goods. In order to be beneficial, the sand must be in proportion of at least one half, or more, to the clay.

I may mention here, also, that the common notion of frost tending to kill insects is far from correct.

Levelling and Draining.—One of the most important things effected by digging is the levelling of the surface in cases where the soil is very light, and liable to become parched for want of a sufficient supply of moisture; for the sun, having less effect upon a level surface, because the rays of light run in straight lines from the sun, will not carry off so much water as from a slope. By the same principle, when a soil is too wet and cold, the forming of the garden into a slope, if the expense can be afforded, will be of great advantage.

Although draining is rather extensively practised, I question whether its principles are sufficiently understood; for it is obvious, from what I have already detailed, that this will not depend altogether on getting rid of superfluous water, but upon the circulation thereof which is effected, and also upon the circulation of air that must be consequent upon all under-ground drains formed with potsherds, broken slates, or brushwood. I even question whether such drains might not, on this account, be of advantage in gardens, in which the soil was dry enough not to require any lodged water to be carried off.

NEW-YORK FARMER.

AUGUST 1, 1834.

REPORTS OF THE CROPS AND THE WEATHER FOR JULY.—With the exception of a few limited districts, where rye was injured by frost, and wheat by insects, the crops of grain throughout the country are represented as promising abundantly. The weather for the most part of this month has rapidly advanced corn. Grass has, in all this section of the country, given a very heavy burden. Although there have been frequent and some heavy showers, yet the weather has been favorable to the farmer, with the exception of some excessively hot days.

The crops, the prospect of the former state of the currency being restored, and the general indications of returning trade, afford much encouragement for the future.

Milton, Vt. July 15, 1834.

MR. FLEET,—The Farmer is an excellent journal, and when read, will prove highly beneficial to the agricultural interest. Excuse the suggestion, but, in my opinion, it would prove far more acceptable to the reading community, did it contain more information upon the seasons, and the prospects of crops in the various sections of our country.

The spring with us was backward, but after about the middle of May, vegetation came forward rapidly. The season thus far is a very dry one, and for the last twenty days excessively hot.

Corn looks well. Winter grain was injured by the frost—shall get a medium crop, however. Grass is very light. Respectfully, yours,

S. R. CRANE.

THE CROPS.—From every part of the country we receive the most cheering accounts. Excepting the frosts in May, and they were not so disastrous as was expected, the season has been unusually favorable for almost every species of vegetation. Small grain has turned out unusually fine, and cotton and corn give promise of plenty. We do not recollect ever to have heard so general and uniform expressions of satisfaction among our agriculturists, as at present appearances.—[Nashville, July 8.]

CROPS IN VIRGINIA.—The crop of cotton, except an inconsiderable remnant, has been received and disposed of. The total receipts in Virginia for the year ending 1st October next, may be estimated at 42,000 to 43,000 bales—disposed of thus:

Shipped to foreign ports, . . .	bales 30,000
Coastwise.	6,000
Manufactured in Petersburg, Richmond, &c.	5,000

Each of these items, it is believed, will be within the mark, but the last has not heretofore been taken into account in estimating the crop. It begins now, however, to assume sufficient importance to deserve notice. The supply of cotton to Petersburg from North Carolina has been increased this year by the facility of getting it to market on the railroad.

Whilst the operations of the manufacturers in this country have been considerably diminished, and rendered unprofitable, those of England and France have increased, and thriven to such an extent as to require nearly all the raw material which had been furnished to them up to the latest date from thence: prices were consequently supported there, and an advance created here—the Petersburg quotation being now 12½ to 13¼. But as large supplies were to arrive in Europe after that time, there is more likelihood of their having a redundant, than a limited stock. The crop of 1833, in the United States, it is estimated, will reach, if not exceed, 1,200,000 bales—that of 1832 was 1,070,000.

This is the season of greatest activity at the tobacco inspections, and as an impression prevails that the quantity will prove smaller than usual, prices have recently advanced, particularly of the finer qualities—the general sales of such are between 8 and 10 cents, but for fine and superior 11, 12, 13, and even 15 in a few instances, have been paid. The lowest quality sells at 3½ to 4, and other sorts at all the intermediate prices up to good and fine. The result of the crop, as to quantity, cannot be ascertained until October. The foreign orders, both for cotton and tobacco, have this year been larger than usual.

The increase of flour mills in Richmond has increased the competition in the wheat market, and contracts have been made for the new crop at $1 15 cents per bushel. The usual demand for new flour for the South American markets, as well as for those of our northern cities of which Virginia furnishes the earliest and best supply, give a great advantage to her farmers who possess facilities for delivering their crops early in the season.

It it pleasing to remark that the recently projected work of extending a railroad from Richmond to the waters of Potomac is about to be undertaken. The subscription of $300,000, for which books were opened, have been readily filled, and it is understood that operations will be commenced forthwith. When this work shall be completed, there will be a continued line of communication by steam power from Boston to Roanoke, with two very slight intermissions; and we may hope to see ere long similar improvements extended to Raleigh, and farther south.

The great work of improving the western communication from Richmond to Kanawha, is also said to have assumed a more favorable aspect.—[Farmers' Register.]

Throughout the month of June the weather was favorable to the growing crops. Rain fell at intervals and in such quantity as was necessary to promote a vigorous vegetation, and at this moment the crops promise to be most abundant.

Wheat is generally good, though there are some exceptions, which may be attributed to three separate causes:

1st, To exhausted soils, unfit to produce a good crop of wheat.

2d, To good soils, having been injudiciously managed; for instance, strong heavy clays ploughed in wide flat ridges, suitable only to light loamy soils, and not best even for them.

3d, To the ravages of vermin, at the root of the plant, on soils of various qualities.—[Montreal Adv., July 10.]

Reports from Great Britain represent the prospects of the crops not flattering.

Lancaster, England, June 22, 1834.

MR. FLEET,—Our apple crop and pears will be a failing crop this season, on account of the month of May being uncommon hot and dry, so that there was no moisture to assist the fruit in setting. This month of June is fine seasonable weather, warm and showery, which is giving strength and beauty to vegetation, and our market is well supplied now with new potatoes at a penny per pound.

New peas are also plentiful, and the different sorts of cabbages; our gooseberries are also plentiful in the market, at a penny per quart, and the rhubarb is very fine this season, and is much cultivated for market; it is made into tarts mixed with gooseberries.

It has been a most unfavorable spring for

fruit tree grafts; many hundreds of grafts have failed in my garden for want of rain.

I remain yours, M. SAUL.

QUARTERLY AGRICULTURAL REPORT IN GREAT BRITAIN, May, 1834.—The prognostication of a seriously wet spring has entirely failed. With the exception of a few days of easterly wind, and a sprinkling of snow on the hills, in April, a finer seed-time has not been seen in the memory of man. Genial drought and abundant sunshine prepared a kindly bed for the seed. Perhaps the drought was a little too severe on strong land for the barley seed. The seed, thus drily and warmly deposited, has produced a strong and healthy braird of spring wheat, oats, barley, peas and beans. All the operations of the fields have been proceeded in without interruption; and, therefore, they have been performed in a satisfactory manner. Should the theory of Professor Rennie, on fallowing, as promulgated in our leading article, prove correct, the constancy of sunshine during the quarter should have suitably improved the ground for potatoes and turnips.

Winter wheat, having received no check during the frostless winter and spring, is thickly planted, very luxuriant, and early, even on the poorest soils. The young grass in March was very luxuriant, thickly planted, and finely mixed with clover and rye-grass. The favorable drought for the seed-time being somewhat cold, checked the growth of grass after it was stocked with sheep, but the *warm* weather and pleasant showers since the beginning of May, have restored it to health and vigor. The hay crop will certainly be a very heavy one, and of the finest quality. Old pastures have sprung unusually early.

Lambs have been dropped strong and numerous during the mild and dry lambing season. With a very few exceptions, no loss has, in this instance, been sustained by the store-farmers in the pastoral districts. Owing to the deficient crop of turnips, and the high price at which the winter fed cattle were bought in, very small, if any profit, has accrued to the feeder. This is a subject of regret, as a trifling profit in winter is apt to render him inactive during the summer. In this state of things, cattle have, of course, fallen in price, particularly in Smithfield; but sheep having paid pretty well for their keep, and somehow continuing scarce, they maintain high prices, chiefly, probably, on account of the high price of wool. Pigs are a drug.

As might have been anticipated, the price of wool has fallen very considerably. No wonder. How was it possible for rough sheepskins to maintain the price of 12s. each? It is believed that for some time past sheep have been clipped before being slaughtered. The ensuing clip of wool will, therefore, be diminished a little in the market, and its price supported. On the other hand, the great failures in America have, it is feared, injured many of our woollen manufacturers. It is not improbable, however, that the price of wool will not be below that of last year. The best hogg wool fetches 40s. per stone.

Orchards and gardens have displayed an immense profusion of blossom, some of the earliest of which may have received injury from the cold nights in April, but there is nevertheless a prospect of an abundant crop of all kinds of fruit.—[Quarterly Journal of Agriculture.]

MONTHLY REPORT OF EXHIBITED ARTICLES.—On reading the pamphlet, (see page 232,) containing the report of the exhibition at Stirling, under the superintendence of Messrs. Drummond, we were strongly impressed with the thought that the adoption of a part of their plan in this city would be followed with similar beneficial effects. We accordingly, therefore, invite all those who have rare or superior productions of the farm and garden, or new and improved machinery and implements, to send samples or models to the office of the Farmer, 35 Wall street, or to the seed store, 81 Barclay street. At the latter place they will be kept for exhibition; and a monthly account will be made and published. When convenient and desirable, those that are suitable will be exhibited at the semi-annual Fair at Harlaem. If the articles are accompanied with information relative to the method of growing, to their useful purposes, &c., we shall be enabled to make our reports more interesting.

We are well persuaded that if our readers practically approve of our suggestions, something useful will grow out of the plan.

The following articles have been sent in during the last month.

Gooseberries.—A bottle of gooseberries, preserved in spirits. They were raised on the farm of Mr. Thomas Ash, at Throg's Neck. Twelve of them weigh 7½ ounces. Mr. A. is very successful in raising gooseberries.

Cider Mill.—This is a model of a new, cheap, and portable cider mill. It is a combination of the grinding apparatus and the press, all included within the space of six feet square. A further description and a drawing will be given in the next number of the Farmer. The mill is the invention of Mr. D. B. Beecher.

Seedling Carnations.—Messrs. Noe and Boll, of 6th Avenue, and 42d st., sent us specimens of upwards of twenty varieties of seedling carnations. They are very showy border flowers, but how high connoisseurs would mark them on the scale of excellence as florists' flowers, we are unable to say. Messrs. N. & B. have upwards of 100 seedlings.

Newark, June 14, 1834.

Long Cucumber.—Dear Sir: I have frequently read of extra vegetables in your Farmer journal, and have taken the liberty to send you a cucumber; it was picked on Friday, and has been handled so much that it does not look as well as when first picked, but as it is it may be worth looking at. I have had a great many 18 inches, but this is the longest, and I think was picked too young. Yours, &c.

P. ALLING.

D. K. MINOR, Esq.

The above is known by gardeners as the Long Green Southgate. Mr. Loudon, in his notes on gardens and country seats, says,

"The Cucumis flexuosus, or snake gourd, is here grown to great perfection as a curiosity; one plant being raised from seed every year. Of four fruit now on this plant, one measured seven feet one inch; another six feet five inches; and a third five feet five inches. The fourth was impregnated for producing seeds for the following season. It may be noticed here, for the sake of those who are not aware of the fact, that when gardeners wish cucumbers, or gourds of any sort, to grow long, and not thick, they prevent them from being fecundated by extracting the style and stigma immediately before the flower opens. The fruit grows slower when thus treated, but becomes much longer. When gardeners wish cucumbers to swell rapidly, so as to cut early, not only are the stamens allowed to come to perfection, but the male flower is brought into contact with the female flower artificially."

FAIR OF THE AMERICAN INSTITUTE.—By reference to our advertising columns, our readers will perceive that this Association, which is the pride, boast, and ornament of our city, contemplates holding its Seventh Annual Fair on the 6th of October next. We hope every one, who rejoices in being an American, will contribute to the exhibition. This Institute has, within about a year, collected what may be considered a large and valuable library.

COLUMBIA COUNTY AGRICULTURAL FAIR.—We have received a list of the premiums of this Fair, to be held on the 8th October next. On a future occasion we will refer to it.

DOMESTIC HORTICULTURAL SOCIETY.—The D. H. S. for the western part of the state of New-York held its summer exhibition at Cannandaigua, on the 27th June. We make an extract.

The strawberries were very luscious, and the largest ever produced by the Society. The cauliflowers, cabbages, peas, potatoes, carrots, lettuces, radishes, cucumbers, &c. were of excellent quality and size.

The flowers presented by the ladies of the Society, comprising almost every kind and variety now in season, were particularly beautiful, doing credit by their perfection to the taste and skill with which they have been cultivated.

The committee on fruits and vegetables were Col. Peyton, Messrs. Granger and Stout, who forwarded the following premiums:

Gen. Whiting, best quart of strawberries, $1; Col. Bogert, next best ditto, 50 cents; Mrs. Gallagher, gooseberries, 1; Mr. C. Butler, best peck green peas, 1; Mr. A. Duncan, next best ditto, 50; Mr. Greig, best onions, 50; Mr. Greig, best potatoes, 1; Gen. Whiting, next best ditto, 50; Mrs. Gallagher, best 3 cabbage heads, 1; Mrs. Greig, next best ditto, 50; Mrs. Gallagher, best 6 lettuce plants, 1; Mr. Greig, next best ditto, 50; Mr. Z. B. Stout, best 25 radishes, 50; Mr. Greig, next best ditto, 25; Mr. Greig, best dozen blood beets, 50; Mr. A. Duncan, best 6 cucumbers, 50; Mr. Greig, best dozen carrots, 50; Mr. C. Butler, next best ditto, 25; Mr. Greig, best cauliflower, 1; Mr. C. Butler, next best ditto, 50.

The committee on flowers were Mrs. Ross of Canandaigua, Mrs. Bogert of Geneva, and Mrs. Stout of Richmond—they awarded as follows:

Mrs. C. Butler, for the most beautiful monthly rose, 50 cents.; Mr. Oliver Phelps, the most beautiful hardy rose, 50; Mrs. B. Whiting, next best ditto, 25; Mrs. Greig, the most beautiful specimen of flowers, 6 sorts, 1; Mrs. Butler, next best ditto, 75; Mrs. Whiting, next best ditto, 50.

Discretionary Premiums.—Mrs. Balmanno, lot of beautiful flowers, $1; Mrs. Butler, yellow trumpet honeysuckle, and white digitalis, 50; Mrs. Greig, hydrangea, 50; Mrs. Butler, collection of fine pinks, 50.

At 3 o'clock, the Society, honored by the presence of a number of respectable visitors, sat down to an excellent dinner, provided by Col. Blossoms, from his own abundant supplies, and the very palatable contributions of the Society.

The President of the Society, John Greig, Esq., presided at the table, assisted by General Bowen Whiting.

The utmost good feeling prevailed; and the "distress" of the country was momentarily forgotten by all parties, in the enjoyment of the rare products of the garden, the field, and the vineyard.

During the festive scene, the question—elsewhere so often and so emphatically asked—"Where is the treasury?" obtruded itself upon the notice of the Society.

No one had "assumed the responsibility" of "removing the deposites" of the Society, or dismissing their "Secretary of the Treasury." This estimable officer had hitherto been remarkably punctual in his attendance and payments. Nor was the Society aware of any difference of opinion between the "Executive" and himself, as to the performance of the du-

ties "assigned by the law and the charter" to the latter. The officer, however, was absent on a journey. And it seemed awhile doubtful whether the members, to whom premiums had been awarded, were to receive aught but "glory." In this exigency, on motion of a member, the "President nominated, and, by and with the advice and consent of the" Society, unanimously given, "appointed Francis Granger, Esq., treasurer, pro tem."

The "Pet Bank," thus created without any "derogation from the constitution and laws," cheerfully and promptly met the run upon it, for the fulfilment of the "contracts and extra allowances" in "hard money." And whatever may be thought by others of the "Safety Fund System," we cannot but cordially approve of its application, in this instance, to the pecuniary affairs of the Horticultural Society. It is hoped, that all other "pressures" may be as easily and happily removed. Many excellent toasts were given, which, not having been furnished with copies, we regret our inability to publish. The dinner closed with a libation to the "immortal memory of Lafayette."

It was, on motion, ordered that the annual meeting of the Society be held, the ensuing autumn, at Lyons—and the following named gentlemen were appointed the committee of arrangements, to fix the time, offer the premiums, and perform the other usual duties of the occasion: Gen. Wm. H. Adams, Dr. Beaumont, Messrs. G. H. Chapin, Samuel Hecox, and E. C. Howard. The Society then adjourned. Z. Bartonstout, Rec. Sec.

Agricultural Exhibition.—We have received from a friend the subjoined account of the exhibition of the Agricultural and Horticultural Society, and observe with pleasure that an interest is beginning to pervade this neighborhood which has never before been felt on this important subject, and which we have no hesitation in saying has been excited by this institution. The late exhibition has developed a fact to which we would ask the attention of agriculturists in the neighboring States. Several specimens of wheat were exhibited which weighed over 60 pounds to the bushel,—some 64; and that to which the premium was awarded WEIGHED SIXTY-EIGHT! The latter parcel received but little extra attention in its culture, and only such as might be given by every farmer,—indeed, such as *is* given by all farmers in countries where economy and skill are necessary to success in agricultural pursuits. We have no doubt that the future exhibitions of the Society will be productive of other interesting results, and of progressive improvement in this most important branch of industry.

On Friday the 4th inst. "*The Tennessee Agricultural and Horticultural Society*" made its first general exhibition of flowers, fruits, vegetables, and grain. Premiums were awarded to the following persons:

For the best wheat, weighing 68 lb. per bushel—W. D. Philips.
" " " Potatoes, beets, and tomatos—Nicholas Hobson.
" " " Cabbages—John B. Carter.
" " " Onions—Moses Stevens.
" " " Butter—Mrs. S. Cantrell.
" " " collection of Geraniums—Mrs. John Hall.
" " " do. flowering plants and shrubs—Wm. Prichard.
" " " variety of Geranium and Jessamine—Jos. T. Dwyer.
" " " Hydrangea—Mrs. F. Linck.
" " finest specimen of Aloe and Oleander—Dr. F. Robertson.

Some fine specimens of mangel wurtzel, ripe sweet water peaches, and apples, were presented by Mr. Benj. Litton.

Taking into consideration the infancy of the Society, and the difficulty of disengaging the attention of our farmers from the all-engrossing, though delusive subject, Cotton, the exhibition was highly creditable to those engaged in it; and from the present, we anticipate highly beneficial results for the future.

N. B.—It is intended to hold a show of Cattle in October.—[Nashville paper.]

Agricultural Fair in Germany.—A correspondent to the London Gardener's Magazine thus writes.

I know not whether, during your stay here, you observed the great meadow before the town, where what is called the October festival is held. This meadow is enclosed on the west by a range of gentle acclivities, disposed somewhat in the form of an amphitheatre. Every year, in October, a great multitude of people from all parts of the kingdom assemble at this festival, which was established by the Agricultural Society, for the exhibition of agricultural produce, and for the granting of premiums to the producers of objects worthy of reward.

Those farmers who distinguish themselves by their agricultural labors, or by the quality and genuineness of the breed of their horses, bullocks, sheep, and pigs, receive publicly, from the hands of the minister for the home department, and in the presence of the king and the whole court, the prizes previously awarded to them by the decision of agricultural judges. Public games and horse-races are connected with this solemnity. Thus, besides the great utility of this annual festival in encouraging and improving agriculture, it affords to the mere spectator a most pleasing spectacle and much genuine enjoyment. On these amphitheatre-like heights, where the Bavarian people, like the ancient Greeks at the Olympic games, annually assemble, a picturesque plantation has been laid out by order of the king. This plantation is to serve as an enclosure and background to a building, which is to have the character of a monument, and in which the busts of eminent national artists and men of letters will be placed. The plantation is in the natural style of landscape gardening; and, though it is as yet of little height, it has a very picturesque effect, which will be greatly increased when the architectural objects are finished.

Munich, July, 1833.

Foreign Grasses.—There is without doubt great room for improvement in objects of agricultural interest, and particularly in regard to grasses and grain. Even a transient glance at the agricultural publications of Europe will furnish convictive proofs to the most incredulous on this subject. It is not the purpose of the present letter to enter into a detail of the species and their qualities, as those persons who desire to investigate the subject can consult Loudon's Encyclopedia of Agriculture, Sinclair on Grasses, and other publications of merit. The object of this letter is merely to state that we will import from Europe, for all who desire them, the seeds of any grasses, grain, or other agricultural or horticultural productions, and any orders for these articles ought to be transmitted to us speedily, so that there may be no disappointment. On receiving a list of the articles required, we will state the probable cost thereof. Yours, respectfully,

Wm. Prince & Sons.

Flushing, July 20, 1834.

Remarks.—We, and doubtless our readers, too, would have been more pleased to have had the relative qualities and adaptation to this country pointed out by Messrs. P.

Grapes.—Dr. Underhill informs us that his vineyard, at Croton's Point, on the Hudson, presents the most flattering appearance, the vines being strong and thrifty, and literally loaded with fruit. Those who contemplate entering into the culture of the native grape, should visit this vineyard. Orders for vines and cuttings may be left at the seed store, 81 Barclay street.

Large Carnation Pink.—In the Westchester Herald, we found the following marked for notice.

We have been shown a specimen of Dianthus Caryophyllus, (carnation pink,) of the variety known among florists as the picotee, measuring within little more than a hair-breadth of three inches in diameter; it is remarkably full, or double, having a ground of pure white with deep crimson stripes. This splendid flower was raised from seed by Mr. Alexander Watson, nurseryman of this village, [Sing-Sing,] and we are requested to say, that if any more successful cultivator has raised a flower *of the same variety* exceeding this in size, he will confer a favor by giving information of the fact to the editor of this paper; and editors generally will oblige by extending this friendly challenge through their columns.

Sagacity of Ants.—Having a mind to try the sagacity of those little insects, I stopped the holes through which they went for their provisions in a neighboring granary, and thereby obliged them to make circuitous journies in order to supply their stores. At last, I spread several handfuls of wheat in a room which joined their abode, but still I found the ants continued going over several gardens, and other large tracts of ground, to find out provisions, and constantly brought them home to the same place, which plainly showed they had not discovered the supply which I had intended for them. At last I caught one of the ants and threw it on the wheat I had spread; the insect having been frightened, and finding itself at liberty, ran away without laying hold of that opportunity to enrich itself, but about three or four minutes afterwards, I was agreeably surprised to see 300 or 600 of these little creatures marching towards the heap of wheat, who all took their loading, and then returned home, which evidently proved that the first ant had communicated its discovery to the others.

Obituary.—*G. Sinclair.*—Died, at New Cross Nursery, Deptford, March 13, Mr. George Sinclair, F. L. S., H. S., &c., nurseryman, in the forty-eighth year of his age. Mr. Sinclair was many years gardener to the Duke of Bedford, at Woburn Abbey, and conducted there, under the direction of Sir Humphry Davy, an extensive series of experiments to determine the nutritive powers of the British grasses and herbage plants. It was there also that Mr. Sinclair composed the *Hortus Gramineus Woburnensis*, a national work, which embodies the results of the experiments alluded to, and is the most important of its kind that ever was published. Mr. Sinclair was also the author of various other publications or articles, the last of which, we believe, was the *Treatise on Useful and Ornamental Planting*, published by the Society for the Diffusion of Useful Knowledge. In the history of British agriculture, the name of George Sinclair will hold a conspicuous station in all future times, as the introducer of a new and improved system of laying down lands in grass. Mr. Sinclair had a considerable knowledge of chemistry, and was a good vegetable physiologist; hence all that he wrote bore a character of scientific inquiry, as well as of practical skill. As a man, few stood higher in our estimation; and it may be truly said, that he was esteemed and beloved by all who knew him. His early death, we believe, may be chiefly attributed to the profound grief which preyed on him after being suddenly bereaved of an only daughter, who died in April, 1833, about the same time that Mr. Sinclair lost his father and his uncle.—[Loudon.]

TRANSPORTATION OF LIVE STOCK BY STEAM-BOATS.—The New-York Beef Market for two or three years past has been sustained at high prices. This is owing in part, it is supposed, to a combination of drovers. We would recommend to the owners of stock the following article, from the Edinburgh Quarterly Journal of Agriculture.

The transport of live-stock by steam navigation to London has tended to maintain their price in Scotland. Every week wedders and lambs, and mutton in the carcass, are sent from Leith and Newhaven, and also cattle from Dundee and Aberdeen, to London. The freights, however, by these conveyances, are at present too high for the profits of ordinary dealers. Were fat cattle charged £1 10s., and lean for laying on to grass £1 a head, we are convinced not a hoof would be allowed to travel the road into England; every one would be transported by sea. Meat in carcass ought only to be charged the ordinary freight of heavy goods per barrel bulk. What a harvest would the proprietors of steam-ships reap from stock at these moderate rates, for some months in the year! But high charges, it seems, must be exacted on meat and live-stock, because sensitive people are averse to voyage, even for a few hours, in the same vessel with the "nasty brutes." The delicacy that is offended at the sweet and wholesome breath of healthy, well-fed animals, when it comes "betwixt the wind and its nobility," is unfit to encounter sea-sickness, or contemn the effluvia of bilge-water, and had better remain on shore. But the proprietors of steam-ships may depend upon it, now that the London market is within reach of Scotch fat stock, thither they will be sent, not in spite of high freights, but through the encouraging temptation of reasonably low freights. We speak advisedly, when we say, that should the high freights for transporting live-stock by steam conveyance be much longer maintained, steam-ships of power and speed and capacity will certainly be laid on the berth for the carriage of all kinds, and in quantity, of goods and live-stock. We know farmers who are already taking up the matter seriously, and dealers and butchers will not be long in following the example. Such a speculation, we are persuaded, will not only benefit this country, but will reward the public spirit of those who engage in it. The change on the state of the cattle markets in this country, which the constant stream of stock conveyed by steam towards the south of England will effect, will be extraordinary, and particularly on the Edinburgh cattle and sheep markets, which will then become the great entrepot of fat-stock in Scotland. Edinburgh being the central point for steam-navigation in Scotland, stock will be sent thither to its market on their own feet for a circle of many miles around it, preparatory to their voyage to England. Small steam-vessels, which cannot make long voyages, on account of the expense of coal, constituting branch vessels to the large ones, will bring down cargoes of stock from the northernmost counties in Scotland direct to Edinburgh, for the London market, if they were fat; or, as it is more likely they would only be fit for grazing, they could be shipped in similar branch vessels at Edinburgh for Newcastle, Whitby, and Hull, on their way to the grazings in Yorkshire and Lincolnshire: Newcastle and Hull being two of the best markets for pigs. Such a plan as this will, ere long, we have no doubt, be organized; and whenever it is set afloat, the agriculturists, both landlords and tenants, in the counties around Edinburgh, and in the North of Scotland, will find it their interest to support it. Already the farmers in the north are tempting steam-vessels to carry their stock to the Edinburgh market. There is no other scheme which could offer to the tenants so good and constant a market for fat-stock, annually increasing by the easy culture of turnips by bone-dust, as London, or for lean, as the grazings in the midland counties of England; or which is more likely to support the rent of land for the landlord, amidst the constantly depressing prices of corn.

STEAM APPLIED TO AGRICULTURAL PURPOSES.—We have heretofore expressed our opinions on this subject. We now state, that if the scientific ingenuity and the capital of this country could be combined, and steam immediately applied to agriculture—and that, if prejudices should retard its application in Europe,—we should, in comparatively few years, cause every principal nation in the world to crush by the weight of their own institutions. But Europe will, and *must*, have the plough driven by steam. From an article in the Quarterly Journal of Agriculture, we make the subjoined extracts.

From the Parliamentary returns, the horses running in coaches in Great Britain, in 1828, amounted to 178,841; and we are perhaps much within the mark when we suppose that these, with all the horses employed in drays or draughts, exclusively amount to 600,000. It is said by some, that each horse consumes what will support eight individuals. The suppression, therefore, of these horses alone, (which does not include one horse employed in agriculture or for pleasure,) will save what will feed 4,800,000 people. The annual consumption of grain, by human mouths, in Great Britain, (viz. 16,000,000,) is about 32,000,000 quarters, of which not one-twentieth part has, during any year, been imported. But the saving of what would feed, by the removal of the horses used for transit alone, 4,800,000 people, amounts to more than what is consumed by the fourth part of the said population. If importation of grain, then, to the very limited extent of one-twentienth, viz., 1,600,000 quarters, has hitherto been deemed an evil of no little magnitude by the agricultural interest, what will they consider a system which will abridge home consumption equal to one-fourth, viz. 9,600,000 quarters? At first sight this will appear to the agriculturist as involving more certain and complete ruin than even that which would follow the repeal of the corn laws. But this is taking a narrow, a prejudiced view of the matter.

The application of steam to purposes of husbandry will so cheapen the cost of production, as to reduce the price of food with remuneration to the growers. It is well known, that the expense of horses forms the principal item in the outgoings of the farmer. The late Dr. Colquhoun, so far back as the year 1812, in the estimate which he makes of the new property created annually in Great Britain and Ireland, taking each kind of grain at 50 per cent. less than the average prices in the public markets of the 12th September, states the crop of hay, grass, straw, and vetches, as amounting in value to £89,200,000.

And the portion of this consumed by horses, was as follows:

Horses in Great Britain and Ireland, estimated at 1,800,000, at 45s. each for grass,	£4,050,000 0 0
For hay, at £6 each, - -	10,800,000 0 0
For straw, at 5s. each, - -	450,000 0 0
For beans and peas - -	2,640,666 13 4
No separate item is given for corn, but taking the half of that consumed by animals generally, as consumed by horses, viz., £14,790,000,	7,395,000 0 0
We have	£25,335,666 13 4

—which is substracted from the above, purely to support the brute labor which it is now possible to supplant, in a great measure, by steam. When it is farther considered how much horses have multiplied since the period mentioned, it is perhaps speaking greatly within bounds, when we suppose they are maintained at a yearly expenditure of £30,000,000. It is not difficult then to perceive, how the suppression of horses, either in whole or in part, will economise a saving in farm management sufficient to effect a great cheapening of agricultural produce with advantage to the producer, and benefit to the consumer.

Though difficulties exist in the minds of agriculturists, who have not turned their attention to the subject, as to the possibility of extending steam to husbandry purposes, no difficulties exist in the opinions of many eminent machinists who have turned their attention to it. We have had conversations with several patentees, who have each assured us that there are no practical difficulties in the case, provided there was any inducement for them to direct their skill to such a species of machinery. Mr. Phillips' getomic apparatus, the model of which we have seen, though far from being a perfect machine, is yet sufficient to show that a little farther simplification is all that is required to render it such. We are happy to say, that, in our notions respecting steam-ploughing, whether as regards its practicability or importance, we are corroborated by a Fifeshire farmer, who, in a letter of the date 24th December, 1833, published in the Fife Herald, remarks, "that at present, when the ingenuity of man is upon the stretch to devise means to abridge human labor, and add to the comforts and intelligence of a redundant and still increasing population—when, by our absurd laws, the manufacturer is under the necessity of giving an extravagant price for the first necessaries of life—when industry is fettered, and the growing resources of the country are circumscribed, our tenantry wasting their time and means, and crouching under the power of their proprietors, on account of a corn monopoly, I wonder it never struck some of our agriculturists that they might, like the manufacturers, endeavor to undersell their neighbors, and drive them out of the market. I know it will be said, that it is impossible—but what I am going to suggest is a farther extension of machinery, to assist us in keeping ourselves ahead of our neighbors, and that is the application of steam to the working of ploughs. At present, it requires nearly the half of the produce of a farm to pay the necessary expenses, and a great part of that goes to the keeping of horses, harness, &c. Now, if the farmer could get a steam-engine to work his ploughs, harrows, and rollers—thrash and shear his corn—cast his drains, and rid his land of large stones,—he would be able to pay his present rent, although there were no corn-laws, and grain one-third cheaper than it is."

We have gone into this detail, not because we advocate the application of steam to general locomotive purposes, merely from the love of change, without any other reason than that change is the order of the day. No, but because there are numerous weighty, and what ought to be *imperative* reasons, for the agricultural classes giving this matter their deep and serious attention. From the whole course of events, no man can be so blind as not to perceive that, upon the subject of the corn laws, the agricultural and manufacturing classes are about to come shortly into a fearful collision. Cheap bread is a thing that our starving and oppresssd people must have, either by a cheaper system of cultivation at home, or by importation of corn from abroad. The alternative is the choice between the life and the death of the State. For surely it is madness amounting in degree to theirs whom the ancients conceived were doomed to perish, to suppose that cheap bread, by a method that will ruin our domestic agriculture, will not precipitate the country into that state of social disunion which the whole tendency of our affairs shows to be in course of progression. Now, let it be supposed that steam has had nothing to do in maturing this condition. During the last quarter of a century, it has been applied to what may be called *physical* purposes only, *i. e.*, to purposes which have materially abridged manual labor, and multiplied almost indefinitely every species of commodity,

whilst it has not been applied to any one purpose that has increased human labor, or saved the consumption, and cheapened the production of food. Consequently there has been a gradual disapproximation between the necessaries and the conveniences of life, until, after nineteen years of peace, and what ought to have proved financial recruitment, it has reached an extent which has unbalanced consumption and production, to a degree which is paralysing all commercial and agricultural transactions, fearfully increasing pauperism and crime, fomenting sedition, and threatening the peace, order, and best interests, social and civil, of society.

The extension of steam to *economic* purposes, *i. e.*, to purposes which will permit the removal of brute labor, will remedy the evils arising from its partial application; for, as we have shown, it will save and cheapen food, and that by a way which, over and above its improvement of internal communication, will improve the coal trade and iron trade, those pillars upon which the prosperity of the country is said to rest, as well as every department of manual industry. Applied exclusively to physical purposes, machinery as yet has, with all its advantages, been attended by evils far from being partial. Extended further to economic purposes, the good that will follow will not be short of universal. Hitherto its abuse, that is to say its former application, alone has been pernicious; now its use, that is to say, its latter application, will be commensurately beneficial. Machinery has made goods,—machinery also must make a market. The existing circumstances of society demand this, otherwise all will terminate in convulsion.

There is not a laborer in the three kingdoms who does not feed his belly at the expense of his back. This is an evil of no trifling character, for it is one which affects the entire industry of the country; and farther, it is one which, for the interest of all parties, ought to be removed without loss of time.

In order more effectually to promote this object, and carry the project extensively into operation, A NATIONAL INSTITUTION OF LOCOMOTION, unconnected with any trading company, is now in progress of being formed to promote the application of steam to general purposes of transport and husbandry, and to supply the desideratum which has long been experienced of there being no metropolitan association, in connection with the various companies and local societies throughout the united kingdom, formed for the advancement of commerce and agriculture.

When we consider how exigent is the WANT which steam applied to economic uses is commissioned to alleviate, and how reckless in its consequences, as that volcano indicates whose eruptions are now nightly visible in the farmyards of some district or other of the country, we consider it fortunate that, if CHEAP BREAD be wholly unavoidable, it can now be procured in a way that makes it wholly desirable. The bane of having prices reduced by steam transport, and the antidote of providing for the same by steam husbandry, are both before our agriculturists. We cannot suppose that they will allow the one to be introduced unaccompanied by the other. In the hope that this will be the case, we cannot conclude this paper without congratulating all orders of our fellow subjects upon the bright prospects which the general application of steam to brute labor purposes opens upon us. At a moment when the resources of the country are no longer adequate to the wants of our population, "WHEN A RESTLESS SPIRIT OF DISCONTENT IS EVERYWHERE ABROAD," and cheap food of *home growth* is a *sine qua non* to an ameliorated condition, this beneficent agent steps in to accomplish what could have been effected by any *external* process whatever. The speedy and general introduction of steam cultivation is all that is required to make cheap bread in Britain, in a way that will reduce no one to destitution in Britain. If our industrious classes must still earn and eat their bread by the sweat of their brow, they shall nevertheless eat it in plenty, and in contentment. Under the social economy which the extension of steam to the purposes of animal labor will allow, it shall no longer be said that the wealthiest empire in the world is also the most wretched one, or that, with all our boasted wisdom in science and art, we are unwise in that which not rightly to know is misery and unhappiness! The better policy of the age of steam must be to make millions rich instead of the units,—to render monopoly the property of the state and not of the stock-jobber,—to comfort a thousand happy homes, instead of building up one bloated capitalist. Steam, which, confined to physical purposes, hitherto has wrought such marvels, extended further to economic uses, can achieve all this, for by *home means*, equalizing the price of necessaries and conveniences, it WILL ADJUST PRODUCTION AND CONSUMPTION; the unbalanced condition of which alone has deranged the currency,—paralyzed transaction,—abridged industry; and, in a word, occasioned all those evils which at length have produced a nation divided into usurers and paupers, to the danger alike of the constitution, the altar, and the throne. R. B.

DISEASES OF SHEEP AND COWS.—Sheep and cattle, like the human family, are subject to a variety of diseases: but it is not my intention to notice more than one or two. There is a disease to which sheep are subject, that is probably more destructive to them than is generally supposed—that of the worm in the head. I have not unfrequently had sheep that were fat, that looked healthy and well, to sicken and die in the course of a few days; and under the impression that they had eaten something poisonous, such things were given them as are generally recommended in books for poison, but with no advantage. Having purchased some Bakewell and Southdown sheep at from $20 to $30 each, has probably induced me to pay rather more attention to my sheep than otherwise I should. One very cold day, winter before last, I saw a half Bakewell ewe standing in the snow about fifty yards from a shelter that had been erected for my sheep, and under which they had usually slept. Her head was down, and occasionally she moved a little. Supposing that she had a young lamb, I walked that course with a view of having the lamb moved to the shelter; but as I approached her, she did not appear to observe me. I took hold of her and she appeared too stupid to notice it. Her head was inclined a little to one side, her eyes glared and appeared almost fixed in their orbits. She was found too stupid to be driven to the fold, and had to be carried. She lived several days; at first she had slight spasms, and foamed a little at the mouth, but after a day or two, she was more convulsed, and would fall down, but would again get up. Supposing her head to be the seat of the disease, after her death it was dissected, and a worm was found in one of the nostrils, a little below the eye, about an inch in length and a quarter of an inch in thickness. Supposing that one alone had killed her, very little examination further was made. In January last, two sheep on the same morning appeared to be sick, one a ewe of the common breed, in fine order, the other a half Bakewell ewe, and fat. The common ewe held her head as high or higher than usual, with it a little inclined to one side, the eyes resembled those of the one already described: on approaching her, she appeared a little stupid, would suffer me to approach very near, and then suddenly dart off as if she had just perceived me. The other held her head rather lower than usual, and suffered me to approach her rather nearer than the other, and appeared more stupid and sick, with no glaring of the eyes. Next day both of them were evidently worse, and the common ewe disposed to hang her head; and on the third day she laid down to get up no more. The glare of the eyes continued, the pupil became enlarged, spasms came on, and a little foam was observed about the mouth. The spasms were first observed to throw the left ear in motion, then the left eye lid, quickly after which it appeared all over the face, head, and neck, but as she was lying down the force of the spasms upon the body could not be seen as upon the one the winter before. The morning she died, I was about leaving home when I was informed she was dead; but I requested her head to be examined to see if any worm could be found. On my return a worm was brought me, about the size of the one already described, and it was stated it was taken out of the head between the eyes. I think it not improbable there might have been many more. The half Bakewell appeared more stupid and sick every day, and held her head lower and lower, until her nose almost rested on the ground as she stood up. I saw her but a few times after the death of the other, but I think towards the last, the symptoms were very much like the other two. About a day and a half after the death of the other, I was informed the half Bakewell was dying. As night was fast coming on, and the weather was extremely cold, it was thought best to have the sheep killed and skinned while warm, after which the body was examined, but nothing found amiss. It was getting too dark to dissect the head, and that was laid by for morning. In dissecting, it was found filled with blood, having been knocked on the head with an axe to kill it. Under this disadvantage it was dissected, and from the head were taken nineteen worms. Some were found high up the nostrils, some in the different cavities of the head, and one large one was found lying on the thin membrane that envelopes the brain; they were of all lengths, from a quarter of an inch to an inch. They were placed upon a piece of paper, and none appeared to be alive: but afterwards, while looking at them by the fire, many were found to move. It appears strange that so many should have been found in the head of one sheep, and that one quite fat. Whether it was their particular location, or like the grubs in the horse, they remain for a time peaceable and inoffensive, and then suddenly destroy life, I must leave for the reflection of others. The worm is supposed to be the produce of a fly which deposites its eggs a little within the margin of the nose, to avoid which is the cause why sheep gather together, and turn their noses inwards. Daubing the nose often with tar or train oil is said to be a preventive. About a table spoonful of a decoction of Scotch snuff injected up each nostril with a syringe, three or four times from the 1st of October to the 1st of January, is said to be a good remedy, but is apt to make the sheep very drunk for some time. I cannot say I have much confidence in either the preventive or remedy proving effectual.

I will now notice one disease to which the cow is subject, that of an inflammation of the udder. I have frequently heard it stated, that it is produced from the snake sucking the cow. The snake is supposed to be fond of milk, but as to any familiarity between the snake and the cow, I have never believed in it. The snake is more like Ishmæl of old, whose hand was "against every man, and every man's hand against him." This disease is not very uncommon to cows. A few years past, one of the finest cows upon my farm (a half Durham) became diseased in one quarter of her udder, and not knowing at the time the cause or remedy, that quarter gradually perished away, and has never since produced milk. To show the cause, the symptoms, and cure of this disease, I will make an extract from a treatise on stock, which was published in England, by J. B. Lawrence, and which has recently been republished in this country.

"*Downfall, udder-ill, inflammation of the udder, &c.*—From what we have said of the digestive process of the cow, and the intimate connection between the fourth stomach and the udder, the reader will be at no loss to

understand that when that is out of order, the udder, and consequently the quality and quantity of the milk, must be materially affected. These, or rather this complaint, for they are all one, or different stages of the same disease, of which the predisposing cause was bad feeding, and the exciting cause a cold or inflammation of the udder, is essential to be taken in time, and of the utmost consequence to the owners of young cattle, which are very liable to its attack, especially at the time of calving."

"*Cause.*—This disease may not only proceed from the above causes, but may also be induced by the animal drinking freely of cold water, when heated by exercise, or by cold exposure, and lying down in cold and damp grass at the latter end of the year, when the nights are cold and foggy, and at a time when the stomach is loaded with food, and the blood plentiful."

"*Symptoms.*—One or more quarters of the udder become swollen, hardened, hotter than common, and painful when pressed; the milk is reduced in quantity, and changed to a ragged, or bloody, or corrupt appearance. At other times, the secretion of milk is stopped, and the tumefied quarter proceeds to a state of suppuration."

"*Cure.*—As soon as the disease is discovered, remove the animal from the pasture, and take from her from three to five quarts of blood; especially if the cow be in good condition, and breathes quickly, and appears stupid." "If the weather be damp and cold, keep her under shelter, and feed her moderately with nourishing food; but if the weather be fine, turn her into a bare pasture, where she will be obliged to exert herself for her food. The swollen udder, or rather that part of it which is affected, (for there is seldom more than one part or quarter affected at a time,) should have the bad milk drawn from it three or four times a day; for if suffered to remain in it, it will irritate and increase the inflammation. Bathe it also after milking with olive oil, or elder ointment."

The same writer recommends medicine to be given internally. His doses are compounds, and the ingredients are not generally kept by farmers, but as epsom salts enter largely into some of them, I imagine they would answer alone. My own impression is, that the best care would be to let the calf run with the mother during the continuance of the inflammation, provided it would suck all the teats.

Extract from the same writer:

"*Sore teats.*—Some cows are very subject to sore teats, particularly such as have newly calved; if this be the case in summer, they often become ulcerated, and the flies plague them to a degree which renders them extremely difficult to milk: it is also a great nuisance at the time of milking, as blood and corrupt matter are apt to pass between the fingers into the milk. The following liniment is very useful for anointing sore teats, and should always be kept in readiness for use:

"Ointment of elder four ounces, yellow basilicon ointment four ounces, spirits of turpentine one ounce, mix and well incorporate them together on a slab, and it is fit for use.

"With this ointment you may well rub the cow's teats every night and morning after milking, if in the summer assafœtida or aloes in powder, and dissolve it along with the ointment. This will prevent the flies from teasing the animal. If the teats be tender only, and not sore, a little gentle rubbing with weak salt and water will in general be sufficient." Finding it inconvenient to prepare the ointment exactly as directed in the foregoing receipt, a handful of the inner bark of the elder was taken and simmered in hogs' lard. Six ounces of the elder ointment was then taken, and while it was warm, one ounce of bees wax and one ounce of turpentine were added, and melted together. After being stirred awhile, the turpentine mostly sunk to the bottom and was thrown out: one ounce of spirits of turpentine was then added, and the whole stirred as long as it was in a liquid state. After the ointment was made, a little boy that had fallen to sleep in the room was waked up to go to bed, he was found unable to walk without assistance, in consequence of his feet being so much chopped and inflamed; they were rubbed with the ointment, and by the morning there was no appearance of inflammation, and the skin was soft and supple, and they soon got well. Though this ointment is not prepared in the way directed, the same ingredients are used and almost exactly in the same proportions. It is an excellent ointment for man or beast, and should be kept in every family. Edmund F. Noel.—[Farmers' Register.]

Growing Ferns and other Plants in Glass Cases.—We lately (March 6) had the pleasure of seeing the most extraordinary city garden we have ever beheld, viz., that of Mr. Ward of Wellclose Square, a gentleman enthusiastically devoted to botany. Along the tops of all the walls of his dwelling-house, of the offices behind, and of the wall round the yard, even up the gable ends and slopes of lean-tos, is a continuation of boxes or troughs, about 14 inches wide, filled with soil and divided crosswise by tiles, so as to form distinct compartments about 1 ft. by 6 in., in each of which one species of plant is grown. We should suppose there must be at least room found in this way for 1500 species. The sloping roof of a shed is wholly covered with soil, and divided into compartments by slips of wood; in these compartments sedums, saxifrages, and other succulents, are grown. In the open yard there are two or three trees; the best of which, for a London garden, Mr. Ward considers to be the fig. It thrives amongst smoke and dirt, and shows a broader leaf, and of a more intense green, than any other tree; and this either as a standard or against a wall. Next to the fig, the Acer Pseudo-Platanus is found to be the most prosperous. In the interior of Mr. Ward's house, there are boxes in every window, some on the outside, and others on the inside, containing plants. These boxes are from 8 in. to 1 ft. in width, in length equal to the breadth of the window or its sill, or window seat; and the sides are from 18 in. to 2 ft. in height. About 6 in. of the lower part of the sides, and the bottom, are of wood, put together so as to be water-tight; and the upper part of the sides, and the top, are wholly of glass. In the bottom, soil, stones, moss, &c., are placed; and ferns and other plants are planted, and duly watered. This being done, and the superfluous water drained off through a plug-hole in the bottom, which is afterwards closely stopped, the close lid is put on the box, and seldom, or never, afterwards taken off. The plants are found to require no fresh supply of water for months, and some plants will live for years without any; and, as the lid is never taken off, they can have no fresh supply of air, otherwise than by the expansion produced by increased temperature forcing out a portion of air through the imperceptible interstices of the lid: and, when the temperature is reduced, drawing air in, through the same interstices, by its contraction. This, no doubt, will take place more or less every day. The great advantage of admitting air only in this way is, that it is, as it were, sifted, or filtered, from the impurities which float in it; which impurities, and not any thing in its chemical composition, are now generally understood to be the cause why the air of London is less favorable for both animal and vegetable life, than the air of the country. Mr. Ward has grown plants in boxes of this kind for three years with the greatest degree of success; and he is now getting a box prepared, 5 or 6 ft. square, and nearly 10 ft. high, in which he intends to have a rockwork covered with vegetation. In our next Number will be found a paper on this subject, by Mr. Ward: in the mean time, we have, at this late period, only time to state, that the success attending Mr. Ward's experiments opens up extensive views as to their application in transporting plants from one country to another; in preserving plants in rooms, or in towns; and in forming miniature gardens or conservatories, either in rooms or on the inside or outside of windows, as substitutes for bad views, or for no views at all. Mr. Ward has no doubt, that by boxes of this kind, with requisite modifications, he could transport plants from any one country in the world to any other country. In Mr. Ward's drawing-room, we found a magnificent specimen of Melianthus major coming into bloom; and his herbarium contains nearly 25,000 species, arranged according to the natural system, and placed in boxes on a highly improved plan.—[Loudon's Magazine.]

Solvent of Indian Rubber.—There is no solvent of Indian rubber so good for gardening and most other purposes, as refined coal tar, sold under that name by drug merchants, which is only common coal tar deprived of water by boiling.—Robert Mallet, 24 Capel Street, Dublin, March 19, 1834.—[Loudon.]

Price of Land in Virginia.—The salt tide region of Virginia possesses such great advantages for farming, and offers so many inducements for the investments of capitalists, that it seems to a stranger not only remarkable, but unaccountable, why agricultural profits and improvements should be generally so low, and the prices of land still more depressed: poor lands, but such as have abundant and cheap means for being enriched, often selling at from $1 to $2 the acre—and even such as are already rich, at from $5 to $20. Many tracts at such prices are on waters among the best in the world for navigation—and all are convenient to them, and to some one or more of the market towns of the Chesapeake.—[Farmers' Register.]

Wheat Worm.—It is said that the wheat in this and the neighboring counties is suffering great injury from the ravages of a worm. It is the Vibrio tritica, and a full description of it is to be found in the Penny Magazine, for August, 1833.

The only remedy against a recurrence of the evil is to steep the seed wheat in water thrown upon unslaked lime.—[Schenectady paper.]

Cats' and Dogs' Meat.—Would any one imagine, as he walks the streets of London, and hourly hears the shrill and piercing cry of "Cat's meat," "Cat's meat," and looks at the miserable dog that is made to drag it along, himself starving for want of it, and tied to a little cart half as big as an infant's cradle; and at the ragged man, or boy, or girl, that vends it, who might be supposed to be grateful for a dinner out of the cart, if he could afford it; who, at these objects, and hearing these cries, would imagine that large fortunes are made by this vocation? A man, well known in London, has acquired in this way £20,000, nearly $100,000, in 15 years; and in that time has slaughtered no less than 45,000 old or useless horses, and distributed their carcases in the streets for cats and dogs, by little slices stuck on the points of sharpened sticks.—[N. Y. Observer.]

A small Doctor's Bill—Sir Astley Cooper.—Not long since, Sir Astley Cooper was called 130 miles from London to give advice, and said when he got there, "The treatment is good," and turned about. He went by post, was absent little more than a day, and his expenses for posting were £25. His bill was 300 guineas, which is equal to $1500.

Remarks on the Leafing of Oak Trees, and the Tints of the early Foliage. By the Rev. W. T. Bree, A. M. [From Loudon's Gardener's Magazine.]

[The following article is deserving the attention of all those who study landscape gardening. It exhibits the accurate observations and taste of this writer.—Ed.]

The most inattentive observer can hardly fail to have remarked that there is a very considerable difference, (a difference, perhaps, of not less than a month or six weeks,) in the period at which different individuals of the same species of oak, (Quercus Robur,) expand and shed their leaves: those, of course, which assume their foliage earliest in the spring, losing it earliest in the autumn; and *vice versa*. Accordingly it is very common to see one oak tree in full verdure, while its next neighbor, only a few yards distant in the same wood or hedgerow, is perfectly bare, or, at most, with its buds only bursting. It is an equally obvious remark, that these trees vary no less in the tints which they exhibit on first coming into leaf; and, again, nearly as much so when they are preparing to lay aside their honors in the autumn. "The budding oak," says Gilpin, "displays great variety." Of the vernal tints, which, if not so rich and luxuriant in the eye of the painter, are yet exceedingly tender and beautiful, some are of a delicate green, others rich brown, yellow, bright sulphur-colored, red almost approaching to scarlet, with innumerable intermediate gradations of color. It strikes me that these obvious facts might be turned to good account by the planter, whether his chief object in planting be profit or ornament. If there be any truth in the received opinion, that, "of trees of the same species, those which expand their leaves last in the spring, and shed them last in the autumn, afford the best timber," it would surely be worth any one's while, who plants for profit, to select his oaks accordingly. Again, in mere ornamental planting, much advantage might result from paying attention to the different tints exhibited by the foliage, respectively, both in spring and autumn. It is easy to conceive the happy effect which might be produced by either harmoniously grouping together individuals of the same hues in their early foliage, or by judiciously contrasting those of different ones. A whole grove or avenue might be formed, which, at that most interesting season of the year, when the leaves are yet tender, should display, throughout its entire extent, a regular series of graduated tints, or any other combination of color, according to the taste or fancy of the planter; and a corresponding effect would, if I mistake not, be visible also in the autumn. In one part of the park or pleasure-ground it may be desirable that a particular spot should be occupied by oaks which come into leaf the earliest of their kind; while, in another, it may be no less an object to introduce such as retain their leaves to the latest period in the autumn. Even in the case of single trees, it may, according to circumstances, be of some importance to the landscape, whether the one selected for a particular situation be early or late in its period of leafing, of one color or another. Innumerable, in short, are the arrangements, the agreeable contrasts and combinations, which might be formed by paying attention to the above circumstances. I do not pretend to lay down precise rules for the guidance of the planter; I merely throw out a few hints in the hope of drawing attention to an interesting subject, which appears to me to have been more neglected than it deserves.* With most planters, and, I believe I may say, with all nurserymen, oaks are oaks, and that is all: no regard whatever is had to the individual varieties of our native oak, unless, indeed, these be of a very marked and unusual character. Now, if there were a call, on the part of purchasers, for the early or the late leafing varieties, or for those of this or that particular tint or form of foliage, nurserymen would soon learn to sort their oaks accordingly, in order to meet the demand of their customers, or planters, by sowing the acorns and raising their own oaks, might adopt the same method themselves. Nothing could be easier than to do this; for the oak is a tree which developes the peculiar characters which I have above alluded to, at a very early stage of its existence; even the very first season it springs from the acorn, as will be obvious to any one who will but examine a seed-bed when the young trees are first coming up in the spring. There he will see some in broad foliage, while others are only just emerging above the ground. Every variation of color, also, will be perceptible, as much as in trees of mature age; and these peculiarities, it is to be observed, are constant in the individuals, and are retained throughout life: as is the infant seedling, in regard to its period of leafing, and the tints of its foliage, so is the full-grown oak. Even extreme old age is not found to retard the expanding of the leaves, or to affect their color. I consider a bed of seedling oaks, exhibiting, as it does, such diversity of color and of form in the foliage, a most interesting object for contemplation; and I have sometimes fancied that even more of the future characters of the mature tree, such as its propensity to run tall or short in the stem, spreading in the limbs, and the general style and figure of the head and branches, might almost be predicted at this early period: but this, perhaps, is mere idle speculation.

I may add, that the same discrepance in the period of assuming and shedding the leaf is observable in other trees besides the oak, especially in the horse chesnut, the beech, and the ash. W. T. Bree.

Allesley Rectory, February 21, 1834.

* See Whately's *Observations on Modern Gardening*, sect. xiii., for general rules as to the massing and disposition of the different tints of foliage.

Food of Plants.—*Mr. Fleet:* I would ask your correspondent, "A," what chemical authors he would recommend? I have read many, but perhaps I have not understood them correctly. Most of them have taught me doctrines very much at variance with several of his notions. 1st,—I have been taught to believe that the natural state of water is ice; that on being deprived of its caloric, it is instantly converted into ice; but on again receiving the caloric, (which always seeks an equilibrium,) it becomes fluid. Perhaps this is a mistake of my books, and that 'A' can give a more correct explanation. Again: he says the apple tree, grafted with a quince, a sour apple, a sweet apple, and a pear, may be explained by considering that plants take up their food without regard to *proportions, &c.* Now what becomes of those *proportions* of their food which goes to form all these varieties?

Again, in the case of the curious gardener who grafted 20 varieties on one tree, there would be a greater partition of *proportions* in such a tree, and I cannot conceive what would be the true deposition in the root in the earth. Again, Chaptell, Van Helmont, Boyle, Lavoisier, Sir H. Davy, and my own observations, have convinced me that living plants take little save water from the earth; but perhaps my authors and myself are mistaken, and as "A" seems to understand the subject, I hope he will enlighten me. Again, the Editor of the New-York Farmer is very sure that plants deposit an excremtitious matter by their roots, &c., because he can smell the flavor of certain roots in the earth from which they are taken. Now, I apprehend that this is aroma, and the root an excremnetitious deposition.

This aroma is carried into the air as well as the earth. Living plants transpire oxygen, and with it is carried the aroma, or flavor of the plant; of this kind I would mention sweet flag and coriander, and many others. On the whole, I apprehend that the Editor of the Farmer and his correspondent "A" have read much and considered too little. R. M. W.

May 25, 1834.

On preserving Corn and Flour.—In several countries, as in Switzerland, Poland, &c., great labor and expense are bestowed in storing and preserving corn for times of scarcity. In some places, deep pits are made in the solid rock, and in others, caves are dug in the sides of hills, in which the grain is deposited. Large granaries have been also built of stone, so as to admit of a free ventilation, and a frequent stirring of the corn. But for any moderate period, (as for one or two years,) there is no mode so advantageous as the keeping of grain in the straw, in a large and well-built stack, provided it be secured from vermin.

As the straw, however, becomes less valuable the longer it is kept; as stacks are exposed to the risk of fire, whether malicious or accidental; and as few barns, or barn yards, can hold two years' crops with convenience, the discovery of a cheap and effectual mode of constructing a granary, has been long wished for. A gentleman in Cheshire has devised a plan which seems to have brought buildings for preserving grain to a perfect state. It has been found upon trial to answer equal to the inventor's expectations. By this construction, there is an easy mode by which the whole body of the grain is stirred; the air is conveyed and circulated through every part of it, whatever may be the thickness or depth at which it is laid; and only one floor is necessary, however high the building may be.

An engraving that is annexed will enable any individual, who may wish for such a building, to have it erected. A farmer seldom inclines to have much of his threshed corn on his hands at once; but there ought to be, on every farm, places of security, capable of containing at least one-third of the grain annually produced upon it. Such granaries, scattered over the whole country, would be the best security against famine that has hitherto been thought of, and being less visible, would not be so obnoxious, nor liable to the same hazards, from popular frenzy, as large stacks, or even well filled barns. If there should be any objection to granaries of the above description, there is no difficulty in preserving flour, in a manner that would answer the same object. When Bonaparte took possession of Leipsic, prior to the battle which proved so fatal to the French army, he found a number of barrels of flour, that had been kept there for several years, and was in perfect good condition: a sufficient proof that flour, when properly manufactured, and closely packed, in good condition, is not an article so liable to injury, or so difficult to preserve, as is commonly imagined. In vessels made of block-tin, and sufficiently hard pressed, it may likewise be kept sound, for a great length of time, and during the longest voyages. —[Sinclair.]

Butter consumed in London.—The production and consumption of butter in Great Britain is very great. The consumption in the metropolis may, it is believed, be averaged at about one half pound per week for each individual, being at the rate of 20 lbs. a year; and supposing the population to amount to 1,450,000, the total annual consumption would, (on this hypothesis,) be 37,700,000 lbs., or 16,830 tons; but to this may be added 4,000 tons for the butter required for the victualling of ships and other purposes, making the total consumption, in round numbers, 21,000 tons, or 47,040,000 lbs., which, at 10d. per lb. would be worth £1,966,000.

The average produce per cow of the butter dairies is estimated at 168 lbs. a year, so that supposing we are nearly right in the estimate, about 280,000 cows will be required to produce an adequate supply for the London market.

Butter made in hot countries is generally liquid. In India it is called *ghee*, and is mostly prepared from the milk of buffaloes; it is usually conveyed in duppers, or bottles, made of hide, each of which contains from ten to forty gallons. Ghee is an article of considerable commercial importance in many parts of India,

The Practice of Fallowing, of Paring and Burning, of Irrigation, and of Draining, explained on New Scientific Principles. By James Rennie, A. M. Professor of Zoology, King's College, London.

[This article is from the Edinburgh Quarterly Journal of Agriculture. It is one of the best and most sound argumentative essays on rural topics that we have read. If future observation and experiment should establish the points suggested by the Professor, this essay would become a new and important era in agricultural science.—Ed.]

It is little to be wondered at that the practical farmer, more perhaps than any other practical man, is in the habit of laughing at book knowledge and book theory. When I was a lad, being a great reader, I soon got through the scanty supply of books within my reach, and not unfrequently had recourse to others which are seldom opened, either by the young or old. Amongst the books of the latter sort which came in my way were Lord Kames' Gentleman Farmer, Mortimer's Husbandry, and the Bath Society's Transactions; and out of these books I had the impertinence to speak with an air of authority to the Ayrshire farmers, who only laughed at me, as might have been expected, for my pains. In some things, indeed, such as the levelling of the old high-crowned ridges, they allowed my books to be right; but as a general principle, they disclaimed all confidence in book authority, inasmuch as it was for the most part opposed to their own experience, and to the traditionary practice inherited from their grandfathers.

I am sorry to say, though we are certainly making great improvements in book knowledge and in scientific explanation, that the prejudices which I encountered in Ayrshire between twenty and thirty years ago, and which at this moment are widely spread, not only over this country, but over all Europe, are too well founded. What is commonly called the theory of agriculture, such as it is treated in professed treatises and in Encyclopædiac articles, is, with a few exceptions, a miserable tissue of absurd reasoning, the most contradictory principles, and floundering about in the dark.

Some little light, however, has begun to break in upon what has so long been mysterious, and we only want a few such experimenters as Polydore Boullay, Macaire, Biot, and Girou de Buzareingues, to render the theory of agriculture as consistent at least, if not so lucid, as the well known practical results. Among our own inquirers, Darwin, Knight, and Keith, have stood almost alone in this department; for though Sir Humphrey Davy exerted his splendid talents in the investigation of the chemical principles applicable to tillage, he was, there can be no doubt, far from successful, and propagated very serious errors, which his deservedly high authority in other matters tended to diffuse. These errors of theory, when unfortunately applied to practice, led, as was unavoidable, to considerable losses; and gave practical men so deep-rooted a prejudice against science, that it is not easy to persuade many of them to look into a book connected with their pursuits. As things have hitherto stood, they are quite justified; but if all men were to abide by the prejudices of practical farmers against the science and the theory of agriculture, improvement would be at a stand still, and no advance would be made in giving fair and good reasons for following the practice which experience tells them is the best they can adopt.

Next, indeed, to the knowledge of what is best to be done in practice, is the knowledge of the reasons why one mode is better than another mode. Now, *these reasons are in fact the science*, and the farmer who does not know a good and satisfactory reason beyond use-and-wont or hap-hazard experience, for adopting a certain rotation of crops; for liming one sort of soil and not liming another sort; for planting or sowing thinly rather than closely; and, in short, for all his various processes and operations, must be pronounced to know little more than half his own business. Ask any farmer prejudiced against theory, and science, and books, what has spread the red-rust over his wheat, and he will tell you with the utmost confidence that it came from a barberry bush in the hedge, though it is scientifically demonstrable that the barberry bush has no more to do with it than if it had been growing at Botany Bay. Ask him why wide sowing produces heavier crops than close sowing, and he will tell you, it is because the plants have more room and more air—good things in their way assuredly, but only secondary to the powerful influence of the sun's light in preparing the pulp in the leaves, a principle of which the unscientific and non-reading farmer would never dream, but without which all the air and room in the world would not make the plants grow healthily for one week.

Looking at the matter in this light, I think no more important object could occupy the attention of the agricultural reader, than an inquiry into the reasons why the chief processes in agriculture are more successful in some circumstances than in others; for if these reasons are once discovered, and the facts connected with them established beyond controversy, like many of the facts in practical chemistry and practical mechanics, then the farmer will have a sure guide in his operations, and will be as superior to the old farmer of hap-hazard experience, as the modern mariner with his compass is to the mariner of the olden time, who dared not advance out of sight of land for fear of losing himself in the pathless ocean.

Preliminary Facts.—Before coming to the subjects announced at the head of this paper, I must presume the reader to be aware of the following facts,—

1st, That plants as well as animals can live and grow only when they are supplied with appropriate food, and that in due quantity; for, all other things considered, quantity is both to animals and plants always more important than quality.

2dly, That the food of plants must all be dissolved in the water or moisture of the soil, before it can enter the tips of the root fibres, where the mouths, if I may call them so, are situated, and when the water of the soil is too scanty to dissolve the food, the crops must be famished; when the water is rendered too thick by rich manure, they must be choked or gorged; when it contains too little of the common air or any deleterious substances, such as the ammonia of fermenting dung, they will become sickly; and when it stagnates about the roots, they will be macerated and rotted.

3dly, That the food of plants, like that of animals, must, before it can afford nourishment, be properly digested.

4thly, That the digestion of plant food can only be effected by the sun's light falling on the leaves or other green parts; I might have said in free air, but there is little danger of agricultural crops not having free air, provided they have free exposure to the sun's light, which is quite indispensable.

5thly, That in plants, as in animals, there are portions of the food taken quite indigestible, as well as portions of the body deteriorated by use, which portions are excrementitious, and are thrown out as refuse into the air around, and into the earth beneath.

6thly, That these excrementitious matters in the case of plants injure the air and the soil in which they become diffused; and hence it is as indispensable to good cultivation to have the air purified by promoting its free circulation, and the soil purified by other processes, as it is to supply a sufficient quantity of appropriate food by means of manure and of moving (not stagnant) moisture.

These facts being premised, we shall have a firm basis to travel upon in following out the important processes of Fallowing, of Paring and Burning, of Irrigation, and of Draining, which I now propose to discuss in their order, both with reference to the preceding facts, and to what appear to be the grossly erroneous explanations and contradictory statements to be found in works on agriculture.

Fallowing.—A fallow, according to the description of M. De Candolle, "consists in this,—that every three or four years, a certain portion of land is left completely vacant, or, as it is said, at rest. This year of rest is devoted to labors more or less multiplied." By others it is more narrowly described as "the clearing of land from weeds, that the future crop, whatever may be sown on it, may possess the whole energy and strength of the soil." "Be it known unto all men," says Marshall, "the main purport of fallowing is to destroy weeds." Sir H. Davy describes fallowing as a "very ancient practice still much employed, in which the soil is exposed to the air, and submitted to processes which are purely mechanical." Ancient the practice certainly is, for it is recommended by Virgil,—

> "Alternate too thou shalt permit to rest
> The late shorn fallows and the idle mould
> To harden."

And again,

> "That tilth at last rewards the greedy hind,
> And answers all his hopes, which twice has felt
> The sun and twice the frost: by this manure
> Harvests immense shall burst his crowded barns."
> [Trapp's Virg. Georg.]

All these descriptions of fallowing, except De Candolle's, involve theoretical notions respecting its effects, which in this stage of the inquiry I wish if possible to avoid, till a clear notion be come to as to what process the term fallowing is applicable. So far as I understand the term, then, it is applied to land kept out of crop from the autumn, through the succeeding winter and summer, till autumn again; during which time, it is ploughed more or less frequently, both lengthwise and across, and sometimes harrowed, with the view of breaking the surface clods, and of collecting the surface weeds, particularly couch-grass or quickens.

Effects of Fallowing.—This, then, being understood to be the process of fallowing, we have now to look to the effects produced by repeatedly turning over the soil with the plough, breaking it with the harrow, and of course exposing it to the influence of the sun's light, and of the passing air, from which it is unshaded by a growing crop.

A great deal too little attention has been hitherto paid by practical cultivators to the influence of the sun's light. In our preliminary facts, we have seen that it is the principal agent in the digestion of the food of plants; and I have now to show that it seems to be the principal agent in benefitting land during the process of fallowing. In bleaching linen, it is well known that no artificial process will produce the same effects as exposure of the moistened goods to the summer sun; and, in the case of colored prints, the sun will frequently discharge the colors without any other apparent agency. At Shanes Castle, near Antrim, I observed, several years ago, that some chintz furniture in a room, exposed to the direct light of the sun, and to reflected light from Loch Neagh, was rendered nearly white, though parts of the same furniture, not thus exposed, had the colors as bright as they probably ever had been. It is also known to chemists, that, by exposing moistened horn silver, (white chloride, formerly muriate of silver,) to the sun's light, it becomes blackish in two or three minutes, while it takes a long time to produce the same effect in the day light, out of the direct rays of the sun. Numerous similar instances of the chemical effect of the sun's light might be adduced, from all which it is fairly to be inferred, that it acts by decomposing or otherwise changing the nature of the substances it acts upon.

As the sun light, then, acts upon the dark colored and vegetable substances diffused through unbleached linen, and causes it to disappear

from the goods, in the same way it acts on the *dark* excrementitious matter, (Quarterly Journal of Agriculture, iv. 664,) turned up to the surface in the process of summer fallowing, decomposes it, and renders the soil lighter in color and more wholesome in quality for the succeeding crop. This effect of the sun upon the color of a dug up soil may have been remarked by almost every reader, though the inference probably has now been made for the first time, that this paling of the color of the soil is in fact caused by the light decomposing the dark excrementitious matter thrown into the soil by previous crops, which could not otherwise, than by fallowing, be easily got rid of, as no other decomposing agent could be brought to bear so extensively on a ploughed surface, as the sun's light.

The agency of the air appears next to light to be the most important in clearing the soil of excrementitious matter; for, even when decomposed, this matter might remain and prove injurious, were it not raised into the air by evaporation, and carried away by the wind. Professor Daniell tells us, that the same surface which, in a calm state of the air, would give off 100 parts of moisture, would yield 125 in a moderate breeze, and 150 in a high wind; but what is of more importance to be remarked here with regard to fallowing, is that, according to the experiments of Mr. Curwen, there is only a very small evaporation from an unploughed or undug surface, while, from an acre well ploughed and harrowed, no less than 950 pints of moisture, (containing, of course, a portion of excrementitious matter,) were carried off into the air in the space of one hour.

Indeed, it does not appear that it is in all cases requisite for the excrementitious matter to be decomposed by the sun's light, inasmuch as the watery portions thereof may be evaporated without being separated into the gases that compose them; but decomposition will be indispensable before the solid portions of the excrementitious matter can be cleared away from the soil.

In the latter case, namely, where solid excrementitious matter must be decomposed in order that it may be expelled, water or moisture will be indispensable in the process, for as the grass-bleacher must keep his linen wetted or moist, to insure the full effects of the sun's light in whitening his cloth, so must the fallowing farmer have his ploughed land somewhat moist, to insure the full effects of the sun's light in rendering the soil paler by decomposing the dark excrementitious matter.

Some may here object that a dark color is one of the best marks of a rich loamy soil; but the dark color of a soil loaded with excrementitious matter is as totally distinct from the dark color of a rich loam, as a black barren peat-bog is from the color of leaf-mould. The barren peat, indeed, is much of the nature of the excrementitious matter, and those gardeners who know not how to distinguish this barren peat from the sort of fertile peat soil, which is in some respects like leaf-mould, will be certain to injure, instead of benefitting, the American or other plants for which they may use it.

Soils adapted or not adapted for Fallowing.—From these principles, then, the effects of fallowing may be plainly and unequivocally deduced, and it may thence likewise be inferred what sort of lands will be most benefitted by the process. "It is now admitted," says Sir John Sinclair, "that on all light soils, where the turnip culture can be practised, fallows are unnecessary; and that on strong lands, under a judicious system, they are not essentially necessary more than once in the course of a rotation." "However necessary," says Cleghorn, "the periodical recurrence of fallows may be on retentive clays, its warmest advocates do not recommend it on turnip soils, or on any friable loams incumbent on a porous subsoil: nor is it in any case necessary every third year, according to the practice of some districts. On the best cultivated lands it seldom returns oftener than once in six or eight years."

This doctrine agrees with the Agricultural Report of Mid-Lothian, where it is said, that on light dry soils it is seldom found necessary to fallow; but heavy or wet lands are not so pliable under green crops, and although it is possible to labor them also without fallowing, yet it is found to be more profitable to have recourse from time to time to this process, and its operation is generally more effective and lasting on such soils, so that it is seldom necessary to be repeated more than once in seven years. In the Reports of Staffordshire and Kent, we are told that fallowing for wheat on cold, wet, or strong lands, and on all such as are unfit for turnips, is absolutely necessary; and whoever may attempt to manage such lands without fallowing, will have occasion to repent his mistake. In mixed soils, indeed, it is added, too moist for turnips, summer fallowing becomes absolutely necessary, and every attempt to crop without it for any length of time on such land, has terminated in the injury of the land, and the loss of the farmer.

According to the Rev. Mr. Headrick, in the Communications to the Board of Agriculture, strong clays require a more frequent repetition of fallow than those soils that are dry and friable, from containing a greater proportion of sand. In those districts where excessive rains abound during summer, it is seldom convenient for the farmer to be encumbered with too great a portion of fallow, as it is often impossible to get it properly wrought, before the land be turned into mire, if the finest parts of the soil be not washed away.

Among practical men, therefore, it appears that there are scarcely two opinions about the sorts of soil requiring to be fallowed, and it will be found to agree precisely with the explanation of the effects of the process, that in light friable soils the excrementitious matter will readily escape by evaporation, or, where the under soil is porous, may be carried down into it by the descending moisture; while, in stiff and heavy soils, the excrementitious matter is lodged and imprisoned in every clod turned up by the plough, and will require to be broken by the roller and the harrow, to set it free and expose it to the sun's light, and the process of evaporation.

From this it will also be obvious, that it is summer fallowing which is the efficient process,—not winter fallowing, when the sun's light has little power, when evaporation goes on but slowly, and when the greater moisture over the soil holds the clods more tenaciously together, and consequently prevents the escape of the excrementitious matter with which they are charged.

I trust that these principles have now been put with sufficient clearness, not to require my following them out into more minute detail, a thing which every practical man may readily do for himself, when once he understands the facts upon which the explanations I have here attempted must rest. It may be well, however, to see in what manner my principles will affect the theoretical, and in many cases principal, explanations hitherto given of the effects of fallowing.

Previous Theories of Fallowing.—The most ancient explanations of fallowing, such as that of Virgil, refer to the *repose* or *rest* of the land. "Those," says Kent in his Report of Norfolk, "who talk of resting land, seem to consider it of the nature of an animal, which undoubtedly must have rest as well as food, to go through labor; but surely this does not hold good when applied to the nature of land." "The ground," said his Majesty King George III, "like man, was never intended to be idle."

Unless indeed we should fancifully endow the soil with nerves and muscles, whose energy might be exhausted by exertion, this doctrine of rest would never account in the slightest degree for the well ascertained effects of fallowing.

The other most prevalent theories of fallowing are, that it destroys weeds both in the root and the seed; that it kills insects by starving them; that it opens and pulverizes the soil; that it gives time for the decomposition of vegetable matter left in the soil; and that it husbands this without expending it on the nutrition of a crop. Most of these, it is obvious, are very secondary matters, and some of them so wholly imaginary, as applied to fallows, that several writers of high reputation, such as M. De Candolle and Sir H. Davy, seem to hold fallowing to be an unnecessary and uselessly expensive process.

"The advantage obtained," says M. De Candolle, "are the moving of the soil, rendering it more favorable to vegetation, and the destruction of injurious weeds; but it is evident that it leaves a considerable tract of land entirely vacant; that it requires a multiplicity of labor to destroy the weeds, whose growth is more fostered than checked; that it gives little encouragement to the culture of pasture land; and, while it produces no sort of manure, it requires as much as unfallowed lands; and, to conclude, in proportion as population increases, land becomes more valuable, and it is therefore desirable to make it yield, if possible, a crop every year." True; but if M. de Candolle were to recommend feeding pigs or horses on food mixed with a proportion of the cleanings of the stye or the stable, he would get no practical man to try such a method of theoretical economy; and this I conceive to be a case not very dissimilar to culture without fallowing, at least on retentive soils. To use the words of Cleghorn, "all the crops, and all the modes of management which have been proposed as a substitute for fallow, are well known to such men, and would unquestionably have been adopted long ago, if, upon a careful examination of the advantages and disadvantages on both sides, a bare fallow was found to be unprofitable in a course of years." A practical correspondent of Sir John Sinclair goes even so far as to state, that, upon strong clays, with a retentive under soil, "naked fallows every fourth year can alone enable the farmer to pay a high rent,"—a statement which I firmly believe to be correct on the principles already explained.

I may be permitted now to quote, in more detail, the theory of Sir H. Davy, whose erroneous views in this as well as in other instances, have, I fear, done no little injury, particularly among scientific and gentlemen farmers, who may have regulated their practice on his high authority. We have already seen that Sir H. Davy considers the process of fallowing to be "purely mechanical." He elsewhere says, "the chemical theory of fallowing is very simple. Fallowing affords no new source of riches to the soil. It merely tends to produce an accumulation of decomposing matter, which, in the common course of crops, would be employed as it is formed. And it is scarcely possible to imagine a single instance of a cultivated soil which can be supposed to remain fallow for a year with advantage to the farmer. The only cases where this practice is beneficial, seems to be in the destruction of weeds and for cleaning foul soils.

"The benefits," he goes on to say, "arising from fallowing, have been much overrated; a summer fallow, or a clean fallow, may be sometimes necessary in lands overgrown with weeds, particularly if they are lands which cannot be pared and burnt with advantage, but is certainly unprofitable as a part of the general system of husbandry.

"It has been supposed by some writers, that certain principles necessary to fertility are derived from the atmosphere, which are exhausted by a succession of crops, and that these are again supplied during the repose of the land, and the exposure of the pulverised soil to the influence of the air; but this, in truth, is not the case. The earths commonly found in soils cannot be continued with more oxygen: some of them unite with azote; and such of them as are capable of attracting carbonic acid, are always saturated with it on those soils in which the practice of fallowing is adopted. The vague ancient opinion of the use of nitre, and

of nitrous salts, in vegetation, seems to have been one of the principal speculative reasons for the defence of summer fallows.

"Nitrous salts are produced during the exposure of soils containing vegetable and animal remains, and in greatest abundance in hot weather; but it is probably by the combination of azote from these remains, with oxygen in the atmosphere, that the acid is formed, and at the expense of an element which otherwise would have formed ammonia, the compounds of which are much more efficacious than the nitrous compounds in assisting vegetation.

"When weeds are buried in the soil, by their gradual decomposition they furnish a certain quantity of soluble matter, but it may be doubted whether there is much useful manure in the land at the end of a clean fallow, as at the time the vegetables clothing the surface were first ploughed in. Carbonic acid gas is formed during the whole time by the action of the vegetable matter upon the oxygen of the air, and the greater of it is lost to the soil in which it is formed, and dissipated in the atmosphere."

The principles which I have been anxious to press upon the attention of the reader in the preceding pages, will show the vagueness and fallacy of most of these remarks, obviously derived from very partial views, and too narrow an acquaintance with practical results. The reasoning of the author, however, as Hayward well remarks, proves the possibility of staggering even truth itself by a plausible theory, when practical observation is not brought to aid the judgment; but though Hayward perceived great defects in Sir H. Davy's theory, he did not himself hit on the true explanation, though he comes as near it as was perhaps possible from his not being aware of the excrementitious ejections of plants. It will be unnecessary to go into any more of the speculative views either of the modern or the more ancient chemical philosophers, who, for the most part, show only a smattering of practical knowledge to direct them. I shall therefore direct attention now to the theoretical views of more practical writers, which are scarcely more correct than those of the closet or laboratory speculators; and here it is that the controversy to fallow or not to fallow has raged most keenly, I might rather say virulently. The disciples of Tull and the drill system discard all fallowing as a useless loss, while others are no less positive of its being advantageous and profitable.

Marshall and Brown of Markle are two of the keenest advocates for fallowing, though not by any means for the same reasons. Marshall is of opinion, that the chief benefit of fallowing is "to destroy weeds," and its secondary benefit "to meliorate the soil." "By an eighteen months' fallow," says Marshall, ("by which only one year's rent and taxes are sunk, and one crop nominally lost,) assiduously conducted through tolerable seasons, and followed by a spring crop, (or no grain crop,) and cultivated herbage—the most foul, degenerate, churlish, sluggish soil, may be cleansed, pulverized, ventilated, rarified, and roused into profitable action for some length of time. By the help of beans and cabbages in rows, with wide intervals, duly cultivated, strong lands, that are suitable for those crops, may afterwards be kept sufficiently clean, and in sufficient tillage, for many years; as ten, fifteen, or twenty,* according to seasons, and the attention of the cultivator. But whenever a state of foulness or a want of tillage returns, he must be an ignorant or an improvident husbandman, and unfit to partake in the cultivation of a circumscribed territory, who neglects to repeat the operation of fallowing—not by merely "summer fallowing," but by continuing a course of tillage through every season of the year. The great and prevalent error in fallowing, is that of closing the operation when it is barely beginning to produce the required effect. The root-weeds having broken into sets, and the seeds of weeds released from their confinement, they are left alive in the soil, to propagate their respective species, and contend with the crop to be placed in conflict with them. One ploughing toward the finishing of a fallow, may be more radically efficacious in regard to the complete extirpation of weeds, than three or four at its commencement: a regenerating process this, which, in a course of years, will do more for the occupier, the proprietor, and the community, than all the plausible schemes of amateurs, listeners, and superficial observers, added to all the quackery of interested individuals, that has so long been poisoning the minds and debasing the practice of inexperienced occupiers."

Brown of Markle, on the other hand, though equally an advocate for fallowing, shows most unequivocally that fallowing with the view of destroying weeds, which is Marshall's main principle, is in a great measure lost labor and time; for "more root-weeds," he justly says, "are taken off by one gathering, (hand-picking,) than can be destroyed by a couple of ploughings, allowing the season to be ever so favorable; and if hand-gathering will save one single ploughing, (which cannot be stated at less than 12s. an acre,) the expense is amply repaid." Here, then, is the weed theory of fallowing demolished by a plain calculation.

Mr. Lawrence, the author of the "New Farmer's Calender," still more strongly appeals to experience, and affirms, (truly, as I believe,) that he has never observed couch to be eradicated by fallowing: a portion only being destroyed, and a sufficient quantity of roots left to produce a crop which will speedily demand another fallow, and so on for ever. Nay, regular periodical fallows he hesitates not to style the nurseries and hot-beds of couch, since on lands subject to fallowing the greatest quantity of couch is always met with. This author's remarks are the more to be trusted, that he is not a thorough-going disciple of Tull, and does not believe the hoe to be much more effectual in eradicating couch than fallowing, and recommends hoeing only after dragging and burning. It is worth remarking here, that the same author seems, like Dr. Home, not to have been far from discovering the principle of plant excretions, when he shrewdly says, it is singular to admit that fallowing may be superseded by turnip culture, and yet not by cabbage and beans, the appropriate crops for strong lands. Had he followed up this view, he might have arrived at the rationale of the rotation of crops, which had indeed been published by De Candolle some years before, namely, in 1805, but was probably, owing to the war, not then known in Britain.

I would further remark, that, if it be the chief benefit of a fallow to destroy weeds, why is not winter as good for this, or better, than summer? The seeds of animals may then, by bringing them to the surface, be killed by frost; and, still more, couch and other weed-roots may be destroyed in the same way, or carried off by hand-picking. The answer, however, to this is, that winter fallowing produces very little effect, notwithstanding the supposed theoretical influence of frost, compared with summer fallowing; because in winter the sun's light is not powerful enough to decompose the excrementitious matter in the soil, and carry it off by evaporation.

Substitutes for Fallowing.—In order to make up for the great loss of a year's rent and taxes of land under a bare fallow, those who are opposed to the practice have proposed various crops as substitutes; and, according to the narrow and erroneous notions entertained of the effects of fallowing in destroying weeds and pulverizing the soil, it would appear most evident that several sorts of crops might completely answer these purposes,—almost any sort of crop, indeed, under Tull's drill system of husbandry. "Clover," says the Earl of Dundonald, "sainfoin, cabbages, turnips, leguminous crops, hemp, and those plants which overshadow the ground, and cause a stagnation of air, prevent thereby the putrefaction or decomposition of vegetable matters contained in the soil; such crops will therefore prove more economical and beneficial to subsequent crops than the present system of fallowing."

The question, however, is not one of argument, but experience and experiment; for, as Cleghorn well remarks, "no reasons, however ingenious, for the omission of fallowing, can bring conviction to the mind of the farmer, who, in spite of all his experiments, finds, at the end of six or eight years, that his land is full of weeds, sour, and comparatively unproductive. Drilled and horse-hoed green-crops, though cultivated with advantage on almost every soil, are probably in general unprofitable as a substitute for fallow, and, after a time, altogether inefficient. It is not because turnips, cabbages, &c. will not grow on such soils, that a fallow is resorted to; but because, taking a course of years, the value of successive crops is found to be so much greater, even though an unproductive year is interposed, as to induce a preference to fallowing. Horse-hoed crops of beans, in particular, postpone the recurrence of fallow, but in few situations can they ever exclude it altogether."

This I consider to be sound practical doctrine, unbiassed by fanciful speculation. An additional circumstance occurs to me, bearing directly on the weed theory of fallowing. Were it for the destruction of weeds chiefly that fallows are resorted to, a crop of flax would be much more efficient than either turnips or any other green crop; for I have uniformly remarked, both in Scotland, Ireland, and on the Continent, that the ground from which a crop of flax has just been removed is more bare and free of weeds than any other crop. Yet I need not tell the practical reader that flax would be one of the worst possible substitutes for fallow, and unless the land were miraculous in quality, a crop of wheat sown after flax would be almost certain to fail, or at least to be a very indifferent crop.

No crop as a substitute, indeed, could ever answer the same purpose as exposing the soil to the sun light, by repeatedly turning it up with the plough and the harrow; and even if the drilling of green crops would do this, "the process of drilling," as Brown of Markle justly says, "cannot be executed upon clay soils with the slightest prospect of advantage." Mr. Brown, of Cononsyth, Angus-shire, even recommends fallowing upon dry soils. "One-seventh," he says, "of the land of his farm is in fallow or turnips," but in general he only sows about ten acres of turnips, as he finds that he has much better grass when sown among wheat after fallow, than with oats after turnips; and when broke up from pasture, the difference of the oat crop in favor of a bare fallow is also discernible."

As theorists unacquainted with practice often promulgate the most erroneous views, so practical men who set themselves to theorise, are exceedingly apt to stumble upon what is fanciful or wrong. Mr. Main, in his "Physiology," says—"As to the idea that land is benefitted by exposure to the sun and air, except for the purposes of desiccation and more perfect comminution, no greater error was ever conceived; because it is well known that the nutritive qualities of the soil are fugitive under the action of the sun and air." Yet, Mr. Main, just before this, recommends fallowing as "absolutely necessary" to destroy weeds. What! and thereby send all the nutritive parts of the soil into the air?

If I have not much deceived myself, then, the principles which I have above advocated are fully borne out by the best ascertained practical results, and this, so far as I know, cannot be said of any theory of fallowing hitherto proposed. I shall therefore proceed to the next subject announced at the head of the article.

[*To be continued.*]

* This statement of Marshall's is evidently quite gratuitous and conjectural.—R. J

IMPROVING THE QUALITY OF GRAIN.—When wheat has been injured during a bad harvest, it ought to be put into small stacks, in which state it will dry much more quickly, and be sooner rendered fit for grinding into flour. If large stacks are used, *bosses*, or triangular frames, ought to be employed. If stacked in a damp condition, it should rarely be threshed earlier than the summer after it has been harvested, when its condition will be greatly improved.

Wheat, if not in good condition, is much improved by kiln-drying; but it should not be used, unless in cases of necessity, until some time after it has undergone that operation. It ought to be moderately kiln-dried, with a slow heat, and frequently turned. But if the grain be musty, it ought to pass through a previous process, which is thus described by an eminent chemist.

The wheat must be put into any convenient vessel, capable of containing at least three times the quantity, and the vessel must be subsequently filled with boiling water; the grain should then be occasionally stirred, and the hollow and decayed grains, (which will float,) may be removed; when the water has become cold, or, in general, when about half an hour has elapsed, it is to be drawn off. It will be proper then to rinse the corn with cold water, in order to remove any portion of the water which had taken up the must; after which, the corn being completely drained, it is, without loss of time, to be thinly spread on the floor of a kiln, and thoroughly dried, care being taken to stir and to turn it frequently during this part of the process.

By this simple operation, it is said that corn, however musty, may be completely purified, with very little expense, and without requiring previous chemical knowledge, or any expensive apparatus. Mere ventilation, however, has been recommended as a means of preparing grain for use sufficiently effectual.

When grain has been infected by smut, it can be thoroughly cleared, however black it may have been, in the course of three washings, in a wooden tub, resembling a potato mill. The wheat must afterwards be kiln-dried.

It has been generally supposed, that if wheat be much injured during a bad harvest, the flour made from it will not ferment, or bake into loaf-bread, and that it is only fit for distillation, or to be eaten by live stock. But such ideas seem to be erroneous. With the aid of soda, the flour may be much improved; and, at any rate, may be made into cakes, or biscuit, and consumed with safety and advantage.—[Sinclair.]

PACKING GRAPES.—The following is the mode of packing grapes which I adopted with success for many years, having to send them nearly three hundred miles. A box having been prepared, a bed of clean wool, well separated, was laid in the bottom, on which a layer of grapes was placed; each bunch being separately enveloped in tissue paper. A portion of wool was then introduced between each bunch, and all the interstices filled up with it, and then a layer of wool put over the top. For a second layer, a small ledge of wood was fixed at each end in the box at the level wanted, and a thin board made to fit in easily, so as to fall down upon the ledges; in the board there were two finger-holes made with an inch centre-bit; and the board, being fixed down upon the ledges, with a couple of small brads at each end, driven in half-way, a second layer of grapes was laid in as above; and so on for a third layer, if wanted. I think Mr. Wilson will find the above method of fixing in the separation board an improvement upon his mode; at least I preferred it, after trying both ways. The finger-holes I also found very convenient for getting out the board, after drawing the small brads with a pair of pincers. In cases where wool is an object, or may be thought too expensive, moss well dried, cleaned, and thrashed, will be found a tolerably good substitute; but the superior elasticity of the wool renders it preferable.—T. Rutger, Shortgrove, February, 1834.—[Loudon Gardener's Magazine.]

SOWING GRASS SEEDS.—The latter part of this month, those who design to sow for permanent sowing and pasture, should begin to make preparations for sowing. A mixture of some ten or twelve different kinds of the most approved perennial grasses should be obtained.

SHADE IN PASTURE LOTS.—Horses, cattle, and sheep, require shade in their pasture. Without it they do not thrive as well, nor are they as contented. If the owner does not wish trees in the tillable part of his lot, he should set out a clump in a corner where two or more lots join.

WATER ON MEADOWS.—Soon after mowing, water should be turned on the meadows.

WATER FOR STOCK.—Cattle and horses, and also sheep, are not unfrequently made unruly by being kept in the field all day, and even a longer time, without drink. When practicable, they should be watered at noon, as well as in the morning and at evening.

SALT FOR LIVE STOCK.—Those who neglect to give to their cows, horses, sheep, and swine, salt at this season of the year, are not only sacrificing their own interest, but acting with much inhumanity towards their useful beasts.

STUBBLE GROUND.—Those fields from which grain has been gathered, and which have not been laid down to grass, should be immediately harrowed or ploughed. The grain will come up so as to be ploughed in, or serve as pasture.

HOGS.—This is the month to begin to forward the hogs in flesh on cheap food—clover, apples, or thickened swill, with a sufficiency of salt. If they are kept in pen, the cart or waggon should seldom return from the field or woods, without some raw material for the hogs to manufacture into manure.

POTATO VINES.—At this season of the year potato vines are often thrown into the cow yard, where there is standing water. This when drank by the cows has been known to poison and kill them.

POTATO HOE, OR DIGGER.—This is an instrument with three wide tines for digging potatoes. It materially expedites the work, and injures the potatoes less.

HOEING TURNIPS.—This crop should, in almost all cases, be sown in drills. The ease with which they are hoed, and thinned to a proper distance, together with the greater certainty of a crop, renders this method of sowing decidedly preferable. Even when sowed broadcast, they should in most cases receive one or more hoeings. A small hoe of three or four inches in length, or one tapering nearly to a point, if faithfully used, will add very much to the quantity of the crop. The earth should not be heaped up.

UNDERGROUND TURNIP.—The seed of this turnip, (says the Baltimore Farmer,) has been sent us for sale by a judicious and careful agriculturist of Maryland, who describes it as follows. We have no other knowledge of this article.

"The underground turnip, the seed of which is offered for sale, has the property of resisting frost; the bulb will remain nearly invisible, and if sown on the level, or dipping to the south, the crop will be in good preservation, when winter be passed. This turnip is recommended to persons with large stocks, as it has all the good qualities of turnips generally, and, besides, has the exclusive property of resisting frost. It is advisable that the experiment be made by farmers, generally, if even limited to a bed in the garden. It is best to be sown in drills, on the level—that is, to not raise the drills above the surface—the plants to be about 8 inches apart, the drills 2 feet; some persons, to guard against a winter often changing from thaw to frost, throw with the plough a ridge on the north side of the drill, not very high—it proves as a conductor for the cold to pass off as the sun acts on the turnip, which it does more rapidly than the solid mass of earth of the field in which the plants are growing. In the spring the turnips will be found sound and fresh.

"Baltimore, 22d June, 1834."

GREAT HERDS OF CATTLE.—Mr. Gwin, of Madison co., Ohio, keeps 1,200 head of cattle, for which he has ample lands and inclosures; and many of his neighbors who are in the cattle business, have herds of from two to eight hundred, and lands in proportion. It is wonderful to those who can carry back their recollection for a few years, when the whole state was an entire wilderness, to behold Ohio now outstripping most of the old states in population and agricultural improvement.

JELLY FROM APPLES.—Dr. Thatcher, in his American Orchardist, gives the following:

It is not known perhaps so generally as it ought to be, that apples make an excellent jelly. The process is as follows: They are pared, quartered, and the core completely removed, and put into a pot *without* water, closely covered, and put in an oven or over a fire. When pretty well stewed, the juice is to be squeezed out through a cloth, to which a little white of an egg is added, and then the sugar. Skim it previous to boiling; then reduce it to a proper consistency, and an excellent jelly will be the product.

AROMA FROM PLANTS.—*Mr. Fleet:* If you will read Chaptall, 334 to 345, I believe you will be convinced that the smell alluded to as left in the earth by certain plants is not an excrementitious deposition, but proceeds from the essential oil, spiritous rector, or aroma; that this sometimes resides in the root, sometimes in the leaves, bark, seeds, &c.; but in all cases is a mere volatile substance, and whether given to the earth or the air, is not permanent, and can add little, if any thing, to the weight of either. R. M. W.

May 29, 1234.

REMARKS.—The practical question to be determined, is this aroma, or whatsoever else that is left in the soil, beneficial or injurious to other plants—whether it be ponderable or imponderable, volatile or fixed.

THE HARVEST DAY.

'Tis sweet when the earth is covered o'er
With the long and waving corn;
And the joyous reapers arise before
The rest of the world in the morn;
And away, with laugh, and leap, and bound,
To their gladsome work they hie,
With the glorious harvest on the ground,
And the glorious sun in the sky.
Oh, then is a season, when every one,
Who owns there's a God in Heaven,
Should be glad, as ever a mortal can,
For the blessed bounty given.
'Tis sweet to see the young and fair,
With pleasure in their face,
And buxom health, in the morning air,
More glowing in their face,—
'Tis sweet to see them hie away,
To cut the golden grain:—
Oh, GOD, be good on the harvest day,
And give the genial sunny ray,
And the gentle zephyr's cooling play;
Nor send untimely rain!

TALLIES OR STICKS FOR PLANTS.—Little white lead over a smooth cedar or pine stick, is the neatest method. The lead pencil will mark well on it. If the stick is simply moistened, the writing will remain a long time. Roman numbers in part are also used, particularly when a diary or record is kept, as follows, I, II, III, IV, V, VI, VII, VIII, Iv, which last is a notch cut in the edge of the stick, v, vI, vII, vIII, Iv, &c. The slanting mark, \ is for 50.

ANNUAL EXHIBITION *of the Monroe Agricultural Society, Wednesday, Oct.* 15, 1834.—At a meeting of the Monroe Agricultural Society, at the Monroe House in the City of Rochester, on the 31st of May, 1834,—the President in the chair,—it was resolved to hold the next Annual Exhibition in Rochester on Wednesday, Oct. 15, 1834. The committee appointed for that purpose made out the following list of Premiums for 1834, which was agreed to, and ordered to be published.

ON HORSES.

For the best stud horse,	$7 00
2d best do.	5 00
3d best do.	3 00
For the best breeding mare,	5 00
2d best do. do.	3 00
3d best do. do.	2 00

ON CATTLE.

For the best Bull,	7 00
2d best do.	5 00
3d best do.	3 00
the best pair working Oxen,	6 00
2d best do. do.	4 00
3d best do. do.	2 00
the best pair three years old Steers,	3 00
2d best do. do.	2 00
the best pair two years old Steers,	3 00
2d best do. do.	2 00
the best pair yearling Steers,	3 00
2d best do. do.	2 00
the best Cow,	5 00
2d best do.	3 00
3d best do.	2 00
the best three years old Heifer,	3 00
2d best do. do.	2 00
the best two years old do.	3 00
2d best do. do.	2 00
the best yearling do.	3 00
2d best do. do.	2 00

ON HOGS.

For the best Boar,	3 00
2d best do.	2 00
the best breeding Sow,	3 00
2d best do. do.	2 00

ON SHEEP.

For the best fine wooled Buck,	4 00
2d best do. do.	3 00
the best common do.	4 00
2d best do. do.	3 00
the best mixt do. do.	4 00
2d best do. do.	3 00

Discretionary Premiums will be awarded for the best improved or imported breeds of Sheep, which may be presented from any part of the state, and gentlemen having such Sheep are particularly invited to bring them to the Exhibition.

All animals presented for premiums to be accompanied with a certificate of ownership, breed, and manner of raising, and no premium will be allowed on any animal unless owned in the county for the six preceding months, with the exception in favor of Sheep above alluded to.

ON CROPS.

For the best acre of Wheat,	$4 00
2d best do. do.	3 00
the best acre of Corn,	4 00
2d best do. do.	3 00
the best acre of Barley,	4 00
2d best do. do.	3 00
the best half acre of Potatoes,	4 00
2d best do. do.	3 00
the best quarter acre of Mangel Wurtzel,	4 00
2d best do. do.	3 00
the best quarter acre of Ruta Baga,	4 00
2d best do. do. do.	3 00

All field crops to be examined by ten of the town directors, whose statement in writing of the quantity, manner of cultivating, &c. shall be considered sufficient evidence.

Discretionary Premiums, to such amount as the funds of the Society will permit, will be awarded on such articles of Domestic and Shop Manufacture, implements of Husbandry, Silk, Butter, Cheese, &c. &c. as may be presented, and may be deemed worthy of Premiums.

Suitable pens will be provided for the reception of animals, and proper arrangements made for the exhibition of all articles presented.

WM. GARBUTT, President.
LUTHER TUCKER, Sec'y.

TIME OF CUTTING TIMOTHY GRASS.—In the Ohio Farmer we find the following. We should be pleased to have the opinion of some of our readers, particularly on the writer's opinion when clover is mixed with the timothy.

With regard to the proper time to cut grass, there is difference of opinion and practice amongst farmers. A considerable number of them cut their Timothy meadows before harvest, or while in blossom; and more would do so if they could spare the time from the press of other calls upon their service at that period. Our former opinion favored this practice, but observation and experience have convinced us of our error.

In order to an understanding of this subject, it will be recollected that every thing which nourishes may be analyzed into salt, oil, saccharine, &c. &c. Now this last substance enters in the largest proportion into all nutritive vegetable productions. Of course, the time to cut grass is when this quality is in its greatest perfection. On examination, this will be found to be when the seed is beginning to ripen, which is usually after the wheat harvest is secured, if speedily done. The farmer will notice that his scythe, in a dry day, when mowing ripe grass, will in a few rods be gummed over with a thick saccharine matter, which will not be the case when the grass is in bloom. Indeed, by tasting two stocks of Timothy, the one in blossom, and the other when about one-fourth of the seed is ripe, you will perceive the latter is the sweetest. And place two locks of hay before any beast, the one made before, and the other after harvest, and he will assuredly prefer the latter, and, no doubt, from the fact that the saccharine nourishment is in its highest perfection therein.

Timothy meadows should be cut after harvest, for the following reasons: 1st. They make, then, as above, the most nourishing and desirable hay. 2. The farmer has, after his wheat is secured, more leisure to attend to his meadows. 3. Hay can then be made with one half the trouble. We have seen grass cut the forenoon of one day, and stacked the after part of the following, and keep well. 4th. It does not injure the meadows to cut the grass when ripe. Mow any given lot, three years in succession, before harvest, and it will kill all the Timothy. The very best way to destroy any vegetable, is to cut it off when in the prime of its growth.

Having a very heavy crop of grass laid flat, with a storm of rain, when beginning to blossom, for experiment, we cut one half before, and the other after harvest. That which was cut last, though as heavy and down as bad as it were possible for grass to be, nevertheless made the best hay. Should there be a considerable portion of clover among the Timothy, (which it is always desirable to have,) it should still be cut after harvest. The tops of the clover may die, but it will keep moist and green below. C. SPRINGER.

Muskingum Co. Ohio, June 12, 1834.

HARVEST.—We are now in the midst of *wheat harvest;* and it is gratifying to state, that the crops promise abundance of the staff of life. Generally the wheat is short, but the heads are long and well filled. From accounts from other parts of the country, there is a prospect of wheat being in good demand and at a fair price.

Of other crops we can say but little that would apply to the surrounding country generally. The rains have been so irregular, even within this county, that in some places it has been too wet at times to work amongst the corn—in other places it has been so dry that the grass and oat crops have suffered greatly, and the prospect of corn not by any means flattering. On Saturday last we were visited, however, with the finest shower experienced here for the last two months.—[Ohio Farmer, July 1.]

HOEING CORN AND POTATOES.—Some farmers, by the use of the cultivator, dispense with hoeing their corn and potatoes altogether: hilling to any considerable height is very much disapprobated.

"The roots," says a corn planter in the Boston Courant, "when buried several inches of superincumbent earth, become soft, weak, and brittle, and nature to remedy this evil sends out another set above the former. These occasion an unnecessary waste of the nourishment of the plant, and at that advanced season of the year never become sufficiently indurated to perform their office to the best advantage.

If those farmers who may take the trouble of reading this article should doubt the correctness of this reasoning, they are respectfully invited to test it by experiment upon a few rows or hills. For many years past the writer has practised upon the principles here recommended, and has uniformly been successful in his crop.

It may also be remarked that great injury is done both by the plough and the hoe at the time of hilling, by breaking and wounding the long fibrous roots so necessary to the growth and strength of the stalk. After the weeding or first hoeing, neither the plough or the hoe should be allowed to penetrate any deeper than is necessary to destroy the weeds and grass.

In cultivating the potato, the same reasoning, so far as it respects the accumulation of earth, will apply—the bulb is formed simultaneously with the blossom bud. If, after that period, there be much *hilling* up, the first formed bulbs grow but little, being out of the reach of that warmth and air which are required for a perfect growth, and another set above them is produced. Hence it is that by this mode of culture so great a proportion of the crop consists of small bulbs. Every cultivator must have observed that the largest potatoes in the hill are invariably found near the surface of the ground.

Garlic.—The medical properties of garlic are various. In dropsical complaints, asthmas and agues, it is said to have been successfully used. Some instances have occurred, in deafness, of the beneficial effects of wrapping a clover of garlic in muslin and putting it into the ear. As a medicine internally taken, it is usually administered as a bolus, or made into pills. Its smell is considered an infallible remedy against vapors, and as useful in nearly all nervous disorders to which females are subject. An oil is sometimes prepared from garlic, which is so heavy as to sink in water; but the virtues of this pungent vegetable are more perfectly and more readily extracted by spirit of wine than in any other way. A syrup also is made from it.

The juice of garlic is said to be the best and strongest cement that can be adopted for broken glass and china, leaving little or no mark, if used with care. Snails, worms, and the grubs or larvæ of insects, as well as moles and other vermin, may be driven away by placing preparations of garlic in or near their haunts.—[Domestic Encyclopedia.]

Saffron.—Some of the Hatfield farmers have begun to cultivate this medical and coloring plant in the fields—6 or 7 acres have been planted this season. It requires a good deal of labor, especially in gathering the flowers. A farmer, who has cultivated it a few years past, thinks that, after the flowering season commences, the gathering of the flowers from an acre of saffron will employ 5 girls for a month. The price of saffron was high last year; some was sold in New-York at $1. 50 per lb. It may not bring half that sum this year. A square rod it is said will yield a pound or more.

Saffron has been extensively cultivated in some counties of England for centuries, but the English saffron is a different plant from ours; it does not belong to the same class. The English plant continues several years, ours are annual. The flowers of the English saffron are purple, ours are yellow. Ours is called bastard by the English. This kind is imported into England from the East Indies. The English saffron, after it is dried and made into cakes, does not average over 24 lbs. to the acre. Saffron is used in medicine—and in Europe by dairy women, confectioners, painters, dyers, &c.—[Northampton, Mass. Gazette.]

Gapes in Chickens.—One of our subscribers informs us, that a drop of the spirits of turpentine, put into the mouth of a chicken, from the point of a feather or otherwise, will cure the gapes in chickens. Another says, that mixing *salt* with their food will prevent them taking the gapes.—[Ohio Farmer.]

Productive Cow.—The following statement of the cost, expense, and the avails of a Cow, for 14 months, made by a gentleman of this city, who has been a practical farmer, and who is no bad *calculator*, shows how profitable Cows may be with proper management. A farm of 100 acres, by such calculation and management as stated below, supposing it kept only twelve Cows, would afford an annual income of at least $1600.

Dr.—Cost of Cow and Calf,	$20	
Paid for Pasturage,	15	
1½ tons Hay, at $15,	22	50
One ton Corn-stalks,	6	
20 bushels Bran, at 20c.	4	
266 lbs. Oil Cake, at 1c.	2	66
40 bush. Potatoes and Turnips, at 20c.	8	
8 bush. Potatoes, at 42c.	3	36
	$87	52
Cr.—By Calf sold,	$5	44
10 quarts Milk per day, for 14 months, at 5 cents per quart,	210	
Cow sold for beef,	45	84
	$291	28
Nett profit,	$173	76

[New-London Gazette.]

Manual Labor Colleges.—A correspondent of the New-York Observer thus speaks of these institutions in Alabama.

The University of Alabama has about eighty students at present. It is established, as you know, at Tuscaloosa. The Rev. Dr. Alva Woods is the President. This institution has great resources as it regards funds, having realized already more than $200,000 from the sale of the two townships of land granted to it by Congress.

The Methodist College, at La Grange, in the north-western part of the State, is said to be in a flourishing condition. It has more than 100 students in all its departments.

I understand that the Baptists intend to establish a College upon the manual labor plan.

The Presbyterians have recently obtained a charter for a College upon the manual labor plan, to be located near to *Marion*, and to be under the entire control of the South Alabama Presbytery. It is believed that manual labor, by the students, can be rendered exceedingly profitable in this State, by the raising of *cotton*. This is an interesting experiment, and, if successful, it will lead to important results.

Pillars of Roses.—One of the prettiest floral fancies of the present day is that of forming pillars of roses. These pillars consist of roses trained on iron stakes, from 12 ft. to 15 ft. high, well painted; and they form the most durable, as well as the most picturesque, objects in garden scenery. During the ensuing summer, I intend to make an accurate list of all the Noisette roses that are suitable for training in this mode. These, with some of the Ile de Bourbon varieties, added to the already numerous and decided climbing roses, will make a magnificent display. Merely to show how a heap of clay may become a mount of beauty, I last spring levelled and made circular a large quantity of white and blue clay, dug from a pit to contain water: on this, with a small portion of dung and pit sand to each plant, I planted some of all the hardy climbing roses. The effect is now beautiful; and another summer it will be a mount of rose pillars, each from eight to ten feet high.

Artificial Lawns.—In answer to Mr. Thomas Woodcock, we have compiled the following from the writings of Mr. Sinclair. The finest English lawns, we are informed by Mr. Sinclair, who had more experience, as he had more science and skill, in this department, than perhaps any man of his time, with the exception of Mr. Lowson, are composed of the following grasses: *Festuca* duriuscula, *Festuca* ovina, Agrostis capillaris and vulgaris, Avena flavescens, Anthoxanthum odoratum, Cynosurus cristatus, Poa pratensis, Lolium perenne, var. tenuifolium, Trifolium repens and minus. If these seeds be sown in April, on a soil thoroughly drained, well pulverised, and properly consolidated by the roller previously to sowing, they will produce a beautiful lawn in two months; and by frequent mowing, in the course of a year, it will be undistinguishable from one of old turf.—[Loudon.]

See to your Wells.—Parents, if you wish to preserve the health of your families, immediately appoint a day for the purpose of thoroughly cleansing your wells, as you will not only add to the flavor of the water, but prevent many of those contagious disorders that rage at the coming season of the year. I have recently consulted an experienced and candid physician, who gave it as his opinion, that a strict attention to the cleansing of wells would serve as a preventive to a large proportion of the disorders which are common to the autumnal months. He gave me an example of the inattention of people to this important subject. He said, being called to examine a patient in a family of high respectability, he was persuaded that the complaint originated from using stagnant water. By his request, the well was cleaned out, when behold the skeletons of one cat and five toads were among the filth that was taken out of the well. He gave me other satisfactory evidence of the correctness of his opinion. I advise all who have not already done it, to cleanse their wells.—[Worcester Spy.]

Catching Moles in the Neck of a broken Bottle.—Take two common beer bottle necks, set them in the burrow with their wide ends outermost, facing the hole both ways; make them firm with a couple of sticks to each, crossing each other over the bottle necks, close to their widest ends; exclude light and air by a piece of turf or the like, and the trap is set. The mole, coming to the bottle-neck, finds the way plain, and squeezes herself in. She would get through, were she able to hold her hind feet on the glass to push her head and fore legs through; but here she fails, and is generally found squeezed in so hard that a stick is wanted to force her out. This mode of snaring was practised, if not invented, by a farmer in Banffshire, in the early part of the seventeenth century; and it is likely that, though it might then have been generally known there, it has since been lost sight of in the adoption of less simple though more portable snares. By this means the poorest cottager might ensnare this unwelcome guest in his garden, whilst he might not be able to spare either his pence to buy, or his time to make, any other trap.—[Adolescentulus.]

EARLY ONIONS.—William Little, Esq. of Hopkinton in this State, exhibited to us, on the 18th June last, an onion, the growth of the present season, the bulb of which was 1¼ inches in diameter, with a straight well formed top 18 inches in length. This gentleman informed us, that the bed from which this onion was taken was sowed on the first day of August last; and that it had not, in any way, been artificially protected through the winter.

This mode, if adopted by the market-gardener, would be of great advantage, in enabling him to furnish a much earlier supply of this valuable vegetable.—[Northern Farmer.]

CROWS DESTROY YOUNG FOWL.—While on a recent visit on Long Island, a farmer informed us that he had lost all his young turkies and ducks by crows. They would alight on the ground, seize their prey in their mouth, and fly away.

DESTROYING INSECTS BY CHAMOMILE FLOWERS.—In the Irish Gardner's Magazine it is said, not only that decoctions, or the leaves dried and powdered, of the common chamomile (Anthemis nobilis) will destroy insects, but that "nothing contributes so much to the health of a garden as a number of chamomile plants dispersed through it. No green-house or hot-house should be without chamomile in a green or in a dried state; either the stalks or flowers will answer. It is a singular fact, that if a plant is drooping and apparently dying, in nine cases out of ten, it will recover, if you place a plant of chamomile near it." Have any of your readers tried the chamomile in any way as a remedy for insects in England?—JOHN BROWN. Westerham, Kent, Feb. 1834.

HONESTY.—A boy, whose honesty is more to be recommended than his ingenuity, once carried some butter to a merchant in a country village to exchange for goods. The butter having a very beautiful appearance, and the merchant being desirous of procuring such for his own use, invited the boy to bring him all the butter his mother had to spare. 'I think,' said the boy, 'she can't spare any more, for she said she would not have spared this, only a *rat fell into the cream* and she did not like to use it herself.'

CRUELTY.—A person was arraigned before Wm. N. Green. Esq. in this village, on Saturday last, on charge of cruelly and inhumanly beating a yoke of oxen which were in his care. After an investigation, the magistrate not having final jurisdiction in such cases, he was ordered to give bail in the sum of $100, for his appearance to answer to said charge at the next term of the Court of Common Pleas.—[Worcester Spy.]

NEW CORN.—We had the pleasuer, on Wednesday the 2d July, says the Danvill, Va. Observer, af a repast upon roasting ears of the present crop. The corn was of good size and well filled. This kind is what is called the Little River Corn. If this kind were generally planted it might answer a very good purpose such a year as this.

DIFFUSION OF KNOWLEDGE.—A royal Sardinian edict was promulgated, so lately as 1825, which forbade every person from learning to read or write, who could not prove the possession of property above the value of fifteen hundred livres. To become a student, the possession of an income of the same sum is necessary.

MOUNT AUBURN.—This delightful place is daily visited by large numbers of ladies and gentlemen. The carriages and chaises of all, except proprietors of lots, are left at the gate while the parties promenade the grounds. Very great improvements have been made since last season, and others are in progress. The number of monuments erected, and on the ground, is very considerable, and they are seen through the trees in all directions; many of them are exceedingly neat and beautiful, and the grounds around them are laid out with much taste. In one lot, the new-made grave of a child is set round with young flowers, to bloom and die. The ponds have been neatly banked with grass, and flowering plants and shrubs set out around the borders.—[Bunker Hill Aurora.]

EMIGRANTS.—During the past seventeen years there have arrived at the port of Quebec, 69,175 passengers from Europe. The greatest number in one year was 18,231—the least number was 90, in 1824. The number arrived the present season, to the 3d of June, was, from England 2,884, Ireland 6,595, Scotland 1,348, lower ports 19—total, 10,846. Same period last year, 3,175.

The following are the number of passengers that have arrived at the port of New-York, since the first of January, 1834, to June 4th, as taken from the revenue books.

January,	420
February,	460
March,	1454
April,	3959
May,	9653
June,	809
Total,	16,753

[Poulson's Adv.]

A GOOD FLEECE.—Mr. George W. Leonard, of Talbot County, Md. sheared this spring, from *six sheep, forty-two pounds* of clean washed wool, making an average of seven pounds to each sheep. Three or four pounds we believe is a common average.—[Easton Gazette.]

WOLVES.—These destructive animals annually destroy numbers of horses, particularly during the winter season, when the latter get entangled in the snow; in which situation they become an easy prey to their light footed pursuers, ten or fifteen of which will often fasten on one animal, and with their long fangs in a few minutes separate the head from the body. If, however, the horses are not prevented from using their legs, they sometimes punish the enemy severely: as an instance of this, I saw one morning the bodies of two of our horses which had been killed the night before, and around were lying eight dead and maimed wolves; some with their brains scattered about, and others with their limbs and ribs broken by the hoofs of the furious animals in their vain attempts to escape from their sanguinary assailants.—[Ross Cox's Adventures on the Columbia River.]

A MAMMOTH TROUT.—Gen. Cadwallader and lady, of Philadelphia, being on a visit to Bethlehem, Pa. Mr. G. H. Goudie presented to Mr. Ziegler, of the Eagle Hotel, one of the largest brook trout perhaps ever known in this country, which was served up in his best style, at a dinner last Monday, to the General and his Lady, and a party of ladies and gentlemen of Bethlehem, Pa. The trout measured 22 inches in length, 19 inches in circumference, and weighed 7 1-8 lbs. It was raised by Mr. Jacob Schneider, of the Lehigh Water Gap, who had kept it for the last six years in a trough in the second story of his house. We understand Mr. C. of Bethlehem has about 400 fine trout yet in his front house, measuring from 10 to 17 inches in length.—[Easton Sentinel.]

TO DESTROY CANADA THISTLES.—The most approved method appears to be to hoe them up as soon as they begin to expand their leaves. Frequent ploughing during one season has destroyed whole fields of them.

HEDGES AS A BARRIER AGAINST CATTLE.—I know none speedier or better than the Canadian poplar (P. monilifera,) as it forms, in a few years, an impenetrable living palisade against cattle. It should be planted eighteen inches apart, in double rows; and, when sufficiently grown, it may be headed down every alternate year. J. ROBERTSON.

Kilkenny, Jan. 6, 1834.

ICE AT BOTTOM OF RIVERS.—This subject has been considerably discussed in the papers of this country. In the following article, the explanation seems satisfactory.

"The Kennet," says Mr. Loudon, "is one of those rivers that exhibit the phenomenon of ice forming in the bottom, and we were informed here by the Earl of Craven's fisherman, that, in severe winters, the ice forms with such rapidity in those parts of the river that are shallow, and where, of course, the stream is rapid, that, in one night, a complete dam has been formed across the stream, of such a height as to throw the water over the adjoining banks. The water thus thrown over also freezes, and the consequence would be a complete inundation of the valley above, if the fishermen did not take effectual means to break up this dam. It is observed that, when the bottom of the river is frozen, one good effect is the result, and this is, that, when it thaws, the pieces of ice, which float up from the bottom, bring all the weeds with them; thus thoroughly cleaning the river. Observing a circular pond of stagnant water close by the margin of the Kennet, we asked the fisherman whether he had observed what took place in this pond when the river froze at the bottom. He perfectly understood the question, and answered that this pond, and all other stagnant water, froze at top. Some years ago, Mr. T. A. Knight made an attempt to explain the cause of running water freezing first at the bottom, in the *Transactions of the Royal Society;* and the same interesting subject has been discussed by various correspondents in our Mag. Hat. Hist., v. 91. 303. 395. 770.; but the phenomenon has only lately been explained satisfactorily in Jameson's Philosophical Journal. It is there shown that it proceeds from the motion of the water, mixing the frozen laminæ at top with the water below, till the whole mass becomes cooled down to the freezing point, when crystallisation takes place, beginning at the bottom and sides, as it does in the case of crystallisation of salts. Every gardener may prove the truth of this theory, if he will take the trouble of keeping the water of a small pond in motion, by stirring it while freezing. Possibly, if thorns were dragged through the water of canals full of weeds, by men on the banks of both sides, during the frosts of winter, when labor is cheap, the weeds, when a thaw should take place, might be separated from the soil at the bottom of the pond or canal more cheaply and effectually than they could by mowing. This might be tried on a small scale."

HUMIC ACID EVAPORATION.—*Mr. Fleet:* I am inclined to doubt the correctness of Professer Rennie's positions in pages 137 and 8, of the Farmer for May—and would refer to Professor Eaton, of the Rensselaer School, to examine and report

1st. What are the component parts of *humic acid?* which seems is not sour to the taste.

2d. Is the sap in all cases pleasant to the taste?

3d. Does light come in strait lines always from the line, or is it sometimes refracted?

4th. Can beer be brewed in cold weather?

5th. If the temperature of the earth below the surface soil be 48°, and the air 48°, would any evaporation take place, or any hoar frost appear?

There are many other inquiries which will suggest themselves, on reading the communication as published in the Farmer, to each of which I should be pleased to have a rationale.

R. M. W.

June 28, 1834.

COAL CINDERS AS DRAINAGE FOR POTS.—Sir: Having seen an account in this Magazine (i. 224.) of a quantity of Chinese chrysanthemums being destroyed by having coal cinders placed in their pots for drainage, I resolved to try the effects of these cinders on other plants; and I am induced to send the result for your publication (if you think it worth a place,) from observing that cinders are recommended for pot draining, in a communication to a contemporary gardening periodical.

Early in May, 1833, I potted the following twenty species of plants, using cinders instead of potsherds. The plants, being duly marked, were placed among others in the collection; and they, consequently, received the same attention that the other plants did, which were drained in the usual manner. In the beginning of October, I examined the plants drained with coal cinders, and found them in the following state:

Numbers and Names of the Plants.	Dead.	Sickly.	Healthy.
4 Delphinium sinense	3	1	0
2 Cristium afrum	2	0	0
4 Silene maritima	2	1	1
2 Silene maritima flore pleno	2	0	0
2 Soldanella alpina	2	0	0
4 Papaver orientale	3	0	1
2 Lythrum alatum	0	0	2
2 Erythrolæna conspicua	2	0	0
2 Erigeron glabellus	1	1	0
2 purpureus	1	1	0
2 Phlox tardiflora *Penny* (longiflora *Sweet*)	2	0	0
2 crassifolia	1	1	0
4 subulata	0	1	3
2 Œnothera macrocarpa	2	0	0
2 missouriensis	2	0	0
2 acaulis	0	0	2
2 speciosa	0	2	0
2 Pyrethrum inodorum flore plene	0	1	1
4 Asclepias bombacina	3	1	0
2 Clematis Viorna	0	0	2

It will be perceived that, out of fifty plants, twenty-eight died, and ten were so sickly that I threw them away: twelve only remained in a healthy state.

Cinders or coal ashes are also injurious to some plants, when the pots containing them are plunged in the coal ashes, as it will appear by the following fact. The varieties of Chrysanthemum sinense, which were cultivated in this garden in 1832, were plunged about 2 inches below the rims of their pots, at the base of a south wall, for flowering. After flowering (late in November) they were taken up with their roots hanging in all directions over the pots, and plunged in a two-light frame, one division of which was filled with cinder ashes, and the other with common garden soil. In March, 1833, the whole of those plunged in the ashes were pale and sickly, while those plunged in the soil were all robust and healthy; thus proving that coal ashes, as well as cinders, are detrimental to some plants, among which the Chinese chrysanthemums may probably take the lead.

If any of your correspondents would proceed in the prosecution of the inquiry of how far cinders may be used for draining, or what kinds of plants they injure, and what they do not, and would publish the results in your Magazine, the facts contributed could not, when they had become numerous, but avail the deduction of some useful general inference. In relation to this object, I contribute these.

I am, Sir, yours, &c.

H. TURNER.

Botanic Garden, Bury St. Edmunds,
Dec. 5, 1833.

STRENGTH OF CORDAGE.—The Boston Hemp Manufacturing Company have lately put up a machine, at their ropery on the Milldam, for the purpose of determining the strength of their cordage, spun in the common method by hand. A great number of experiments have been made by breaking ropes of various sizes and kinds on this machine, and the following exhibits the average result of these trials. The figures show the number of pounds required, *by each inch of the square of the girt of the rope to part it.*

Whale line spun by hand, best that could be produced,	776	*lbs.*
Whale line spun by machines,	994	
Russia bolt rope, 1st quality,	723	
Bolt rope of machine spun yarn,	915	
Running rigging, 1st quality Russia,	442	
Running rigging, American, spun by hand,	631	
Running rigging of machine spun yarn,	717	
Cotton line,	604	
Coire rope,	215	
Rope made of Manilla hemp,	610	
Rope made of New Zealand flax, *Phormium Tenax*,	722	
Mean of all hand spun hemp rope,	633	
Mean of all machine spun hemp rope,	875	

Showing the machine spun rope to be 36 per cent. stronger than the hand spun. If, however, we reject the trials on Russia cordage, which is very weak, the superiority of the machine spun ropes is reduced to 24 per cent. over all others.

In no instance whatever, was the trial on machine spun ropes made on selected specimens, but the pieces to be tested were taken from common coils as made for use. Indeed, it happened that the machine spun ropes, except the whale lines, were made of hemp inferior in quality to that usually wrought in the machines. The modulus of cohesion, of the strongest ropes in these experiments, is 30,700; or a rope of this strength could be let down into a pit 30,700 feet, or 5-8ths of a mile, before it would be broken by its own weight. A rod of iron can sustain itself, according to Mr. G. Rennie, only for a length of 19,700 feet.

On the 27th of March, by the politeness of Mr. Treadwell, we witnessed the operations of the machinery for preparing the hemp and spinning the yarn; and we were also shown the method of impregnating the ropes with tar, which is done uniformly throughout their whole thickness, the tar being kept at a temperature below the boiling point. The ropes made of these yarns have the appearance of being *stained* rather than *tarred.*

The superior strength of the ropes made from yarn spun by machinery appears to consist in this, that the fibres in the middle of the yarn are nearly of the same tension as those of the outside, whereas, in the yarn spun by hand, they are much more tense in the middle; and the short fibres being the first to give way, the whole stress is thrown upon the outside ones, which, being fewer in number, consequently cannot bear so much strain as a rope made up of fibres of equal tension.

The machine for trying the strength of ropes is so constructed as to try them fairly and accurately. The following experiments on the strength of three ropes were tried in our presence, and we have no doubt of their correctness.

No. 1. Whale line spun by hand—girt 2 inches; broke by 2240 pounds.

No. 2. Whale line made by Boston Hemp Company, spun by machinery—girt 1 $\frac{7}{8}$th inches; broke by 3520 pounds.

No. 3. Running rigging made by the Boston Hemp Company—girt 2 $\frac{1}{8}$th inches; broke by 3440 pounds.

As No. 2 was one seventh smaller than No. 1, we should add 502 pounds to the weight it actually bore, making 4022 pounds, for the weight it would have borne, if it had been of the same size as No. 1: consequently it was 64 per cent. stronger than No. 1. Again, No. 3 was one ninth larger than No. 1; we must therefore deduct from the weight it actually bore 382 pounds, leaving 3058 as the weight it would have borne, had it been as small as No. 1. It was therefore 25 per cent. stronger than No. 1.—[The Mechanic.]

VETCHES, &c., PLOUGHED IN.—Under this article may be included all sorts of green manure. Amongst the most active plants employed as manure, I have found the [wild species of the genus] Sinapis, ploughed in fresh in the bottom of turnip drills, at the rate of twenty tons per acre. The produce brought by auction £12, while the rest of the field, manured with twenty tons of farm-yard dung, brought only from £9 to £10 per acre. Other weeds, such as nettles, thistles, ragwort, &c., produce crops superior to farm-yard dung. Potato stems, fresh ploughed in, on clover lea for wheat, I have found to produce crops exceeding by two bolls per acre in quantity, with more proportionate weight of straw, the other parts of the same field manured with farm-yard dung, but otherwise under the same circumstances. The stems from three acres of good potatoes will manure an acre for wheat to much better purpose than fifteen tons of farm-yard dung, the usual quantity allowed in that part of the rotation; clover after wheat being the crop which generally precedes fallow. Under the head of "green manure," I may mention an experiment I this year made with peastraw converted into dung without the aid of cattle. Having something of that sort on hand, about the middle of last May, and being in want of some loads of manure to finish a potato field, I had the peas thrashed at the mill, and the straw and chaff carried to the side of the potato field, and made up like a large hot-bed, giving each layer of straw an ample watering. Fermentation soon commenced; and, by the fifth day, the mass was so far decomposed as to be easily filled into the carts. The effluvium in filling was almost intolerable. It was in this state laid in the bottom of the drills; the sets of potatoes were planted above, and the earth ploughed over the whole. Notwithstanding the dry nature of the ground, and the dry state of the weather in the summer months, the part of the field manured with decomposed pea-straw yielded a better return than where farm-yard dung was applied.—[Loudon.]

ARTIFICIAL LAWNS.—The finest English lawns, we are informed by Mr. Sinclair, who had more experience, as he had more science and skill, in this department, than perhaps any man of his time, with the exception of Mr. Lawson, are composed of the following grasses,—*Festuca* duriuscula, *Festuca* ovina, Agrostis capillaris and vulgaris, Avena flavescens, Anthoxanthum odoratum, Cynosurus cristatus, Poa pratensis, Lolium perenne var. tenuifolium, Trifolium repens and minus. If these seeds be sown in April, on a soil thoroughly drained, well pulverised, and properly consolidated by the roller previously to sowing, they will produce a beautiful lawn in two months; and by frequent mowing, in the course of a year, it will be undistinguishable from one of old turf.

A Compound Reciprocating Rotary Steam Engine, and an Improved Boiler, invented by SIMON FAIRMAN, *of Lansingburgh, New-York.* [From the Mechanics' Magazine and Register of Inventions and Improvements.]

This engine and boiler may be used separately, or the two together, as may be most convenient; the engine may be connected with any other boiler, and the boiler with any other engine.

This invention presents to the public, in a fair and practical form, the long-sought *desideratum* of a steam engine producing a rotary motion, without undue complication and liability to disorder; without the inconvenience of fly wheels and cranks; and giving the full power of steam without being subject to the constant loss of impetus by the action and re-action of heavy masses of metal.

It will be easily discovered, by examining the drawing, that this engine and boiler, when connected together, will occupy but a very small portion of the space required by the engines and boilers of the same power in common use, and that the weight of both engine and boiler are equally reduced; and as the cost, especially of the engine, is also reduced, at least in the proportion to its size and weight, it follows of course that, in all cases where a rotary power is wanted, it must be entitled to a preference equal to all those savings and conveniences, and for all locomotive purposes, still much greater.

And it must be no less obvious, on inspecting the plan of the boiler, that, besides its compactness, it is capable of producing a given quantity of steam with less fuel than is required for the boilers now in use.

As in the annexed drawing the engine and boiler are connected together; and, as to communicate an idea of the boiler, it was necessary to give a sectional view, showing the form of the inside, the description will require a kind of mixed reference alternately from one drawing to the other.

A, figure 1, represents the boiler entire, the inside of which is explained by figure 2. The furnace door is shown in figure 1, through which the fuel is inserted into the furnace, *b*, figure 2. The water is contained in three concentric double hollow cylinders, numbered in figure 1,—1, 2, 3. It is received from the supply pump, E, figure 1, into the outer cylinder, No. 1, and passes thence through bent tubes, *a*, *a*, into the inner cylinder, No. 3, which forms the furnace, from which it passes through the tubes, *c*, *c*, figure 2, into the centre pan at the top, *d*, which pan is connected with the middle cylinder, No. 2, from which enclosure and pan it goes through the upright or main conductor, D, figure 1, to the engine.

The fire goes from the furnace, *b*, and the top of the inner cylinder, thence down between that and No. 2, and, passing under No. 2, goes up between that and No. 1, and out through the small pipe, B, figure 1; and, when necessary, the draught is accelerated by a blower in the cylinder, *n*. The bottom of the furnace has a grate and ash pan, which need no description.

The spaces between the double cylinders, and in the centre pan, in which the water and steam are contained, are shaded in the sectional view, and the furnace and spars between the cylinders through which the fire passes are left white.

C, figure 1, represents the water tank;

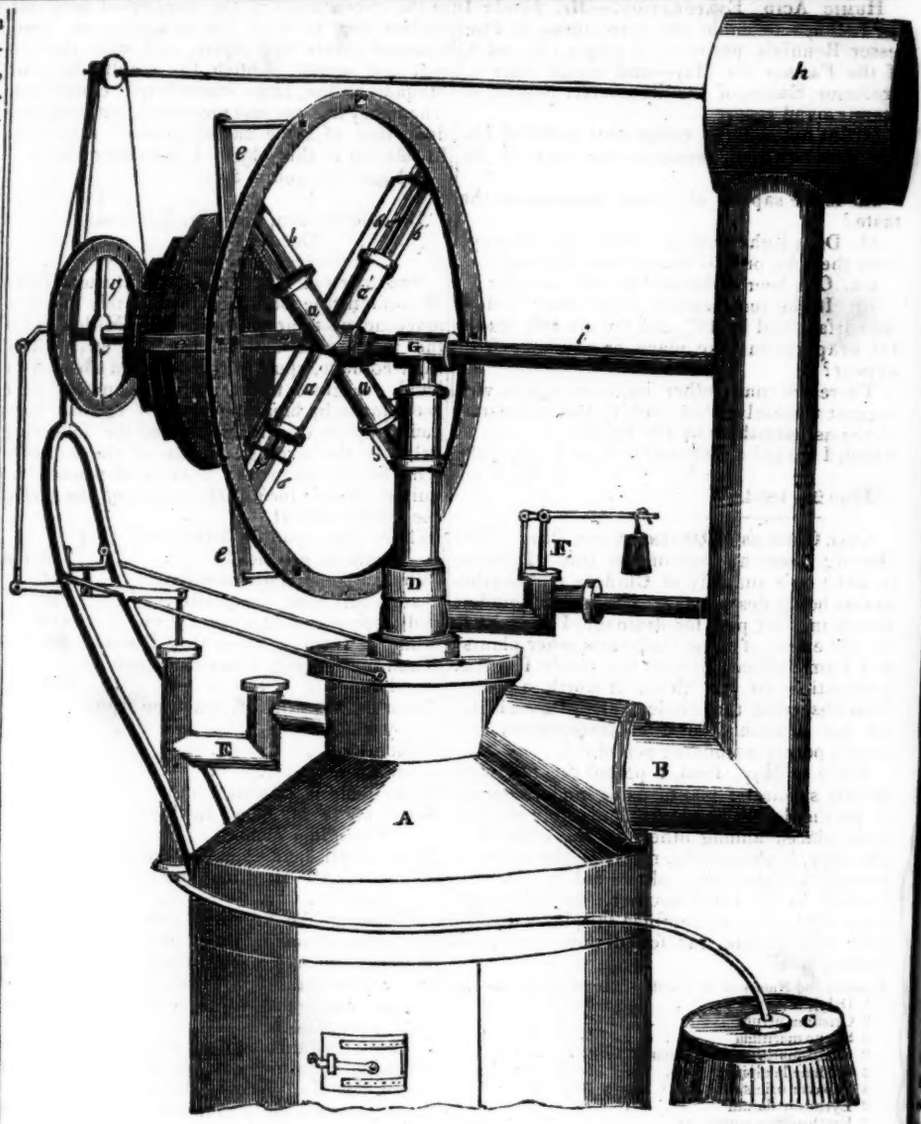
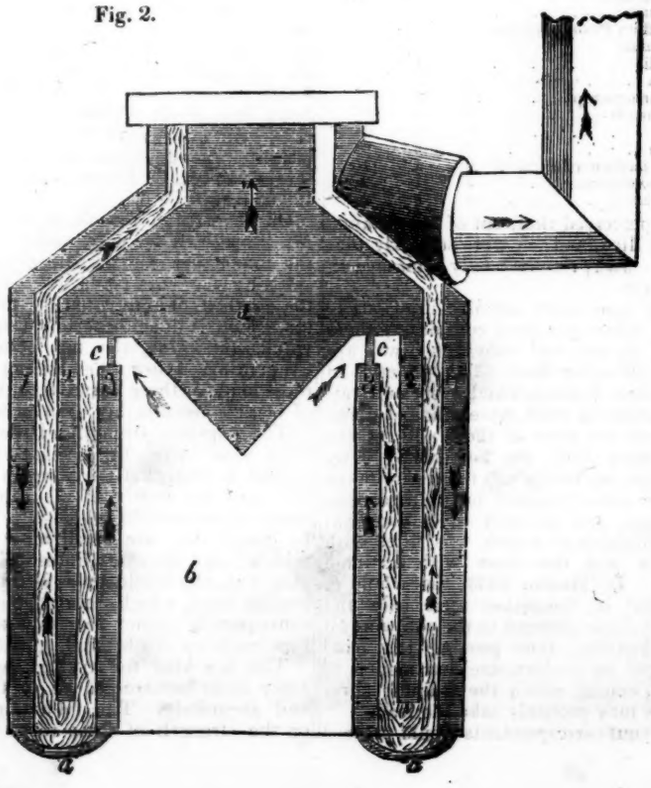


Fig. 2.



F, the safety valve; G, the horizontal pipe forming part of axis, through which the steam is conducted to and from the engine.

a, a, a, a, are four cylinders, in all respects similar to those of the common reciprocating steam engine; which cylinders stand at right angles with each other, with their bottoms resting upon a cylindrical hub, or centre; the cylinders of course forming a cross.

b, b, &c. are the slide rods, part of which only are seen. The bottoms of the slide rods are attached to the flanges round the tops of the cylinders, and their tops to a rim of cast iron, *c*, which rim also steadies and supports the tops of the cylinders by four straps, or parts of arms, *d, d, d, d*, which are bolted to the tops of the cylinders.

e, e, e, e, are four arms, connected with said rim by studs of sufficient length to leave room between said arms and the cylinders for the connecting rods to revolve, and to which arms is attached the main or driving pulley, *f*, or in place thereof a cog-wheel, as the case may require.

The connecting rods and cross-heads being mostly hid in the representation, are so nearly in the common form as to need no description. But the feet of the said connecting rods are connected together by a moveable joint, so as to revolve round a centre-pin, which is removed from the centre round which the cylinders revolve, just half the length of the stroke of the pistons.

The steam is conducted through a hole lengthwise in the main axis G, and out through a hole in the side thereof into the bottom of each cylinder successively, as they revolve.

On the side of each cylinder is a tube, passing from the bottom to the top, and also connected at the bottom with that which lets the steam into the bottom of the opposite cylinder, so that when the steam is let into the bottom of one cylinder it enters the top of the one opposite; and as the feet of the connecting rods revolve round a centre at some distance from the centre of the main axis, as the pistons act and re-act, the cylinders must of course revolve round the axis; and when each cylinder has passed round to the opposite side from whence it filled, the steam escapes through a hole on the opposite side of the axis into a hole lengthwise of the axis, and parallel to the one by which it entered, and goes off through the discharge pipe *i*.

Mr. F. will engage to construct an engine and boiler of fifty horse power, of strong and permanent workmanship, which (both engine and boiler) shall stand on a circle of six feet diameter, and will not vary much in weight from three tons. And operating with steady rotary impulse and without any jar, its operation will be much pleasanter in steamboats, and also prevent the injury done to the boats by the constant racking motion of the engines now in use.

This engine and boiler will be in operation in a few days at 246 Water street, New-York.

Since the above was in type, we have received the following from Mr. Fairman:

To the Editor of the Mechanics' Magazine:

SIR,—However I may be reduced, by misfortune, or rather the folly, of having undertaken to invent useful mechanical improvements, my pride is not so far overcome as to be willing to ask any services on the score of charity; but if, from any other motive, you should see fit to give this a place in your Magazine, I wish you better remuneration for so doing than to meet the fate of an inventor.

I had long been led to believe that a *rotary* steam engine, simple, operative, and sure in its construction, with an efficient boiler, both so compact, and consequently light, as not to overburthen their own power, and peculiarly adapted to locomotive purposes, was a desideratum for which the enlighted public would liberally reward the inventor, if such an inventor could be found. I had good authority for so believing. Many respectable writers on the subject of steam power, have noticed the importance of such an invention, but all I have seen have considered it impracticable.

Mr. Nicholson, in his Operative Mechanic, (Philadelphia edition, page 206,) says: "All steam engines, as yet noticed, have their action by the movement of a piston, in a cylinder, and act by what is called a reciprocating motion. In engines of this description a very considerable degree of power is expended in arresting the motion of the different working parts, and putting them into action in a contrary course. This has claimed much attention of engineers, and many attempts have been made to construct an engine in which the action of the steam should operate in a continuous manner, without bringing the parts to a state of rest."

Again he remarks, (page 213,) "The reciprocating motion in steam engines is a loss of power, which cannot be denied, for the momentum of the beam and other parts, passing in one direction, have suddenly to be arrested and moved in the opposite direction, which produces a loss of power.

"Rotary action has been sought, therefore, with propriety, but has not yet been attained with advantage."

Since Mr. Nicholson wrote the foregoing, the importance of locomotive steam powers has nearly doubled, and yet I have known of no attempt which was likely to succeed in effecting the desired object.

With these views of the subject, and believing, or at least hoping, it was practicable, I undertook, and have no hesitation in stating, that I have effected all that the subject required. I have constructed an engine and boiler as little liable to disorder, and as easily kept in repair, as any other, and, I believe, with at least double the power, in proportion both to the cost and weight, of any which has come to my knowledge.

But my want of pecuniary means compelled me to let the engine and boiler which formed the first experiment, and which could not be expected to be perfect, go out of my control, and be placed where, by awkward management, if it be not condemned, it will discredit rather than benefit the invention. No man of judgment would expect perfection in a first experiment; but fortunately there was no mistake perceived in the engine, and but for a slight miscalculation in the boiler, I would not wish my reputation to stand, as an inventor, on a better foundation.

I cannot now invest the necessary sum in materials to exhibit my invention to the public, but if any gentleman or company interested in procuring the best locomotive engine and boiler, after due examination of my plan, will furnish materials, I will hazard all the labor of constructing them at short notice, and will guarantee, as far as my labor goes, that they shall not vary essentially from the following calculations:

A boiler, which shall expose 160 feet of heating surface to the water, and shall possess sufficient strength to work steam under 100 lbs. pressure to the inch above the atmosphere, and which, of course, must produce a sufficiency of steam for a fifteen or sixteen horse power; an engine with 4 cylinders, 6 inches diameter, 18 inch stroke, making four double strokes at each revolution, and 50 to 60 revolutions per minute, working off from 78 to 94 feet of steam.

The whole engine, boiler and furnace, shall only occupy a circular space of three feet six inches diameter; and shall weigh less than a ton. A boiler and furnace sufficient for a fifty horse power shall stand on a circle six feet in diameter.

All which facts are respectfully submitted by the public's humble servant,

SIMON FAIRMAN.

P. S.—I have no wish nor reason to find any fault with the conduct of the gentleman in whose hands my steam engine is placed in New-York. I have found nothing ungentlemanly or unfair in his conduct. The only difficulty is, the engine was taken away prematurely. S. F.

[From the Portsmouth Journal.]

TO AN EARLY ROSE.

Say, beautiful mingling of water and dust,—
How?—where was thy fair form hid?
When the branch that now bears thee, in fondness up,
By the wintry blast was laid.

Wert thou there, in the bark of that wither'd thing?
Or down in the frozen earth?
Or did part of thee lay in a wreath of snow,
Which could boast of a cloudlet's birth?

Wherever—sweet child of the elements!
A lesson of truth thou dost bring;
For much that seems dross to the human eye,
May up into glory spring.

But thou hast been nought, save a simple bud,
Through stormy and sunny days—
Now thy tunic of green on thy stem is cast,
And thou art all fragrance and grace.

So I—if unsear'd by the world's bright sun,
And firm by its tempests driven—
Shall throw off my vestment of changing dust,
And bloom like thee, Rose, in Heaven.

S.

SUMMER HOURS.

Sweet is the early hour of morn,
With its gift of diamond dew,
When the sky-lark's eye from the earth is borne,
To gaze on the realms of blue.

Ah, dear to a wakening world
This time of the summer's day!
The banner of light *is* again unfurl'd,
Dispelling night's dreams away.

And the richer, glorious hour,
When the sun's o'erpowering beam
Hath added a glow to the palest flower—
A coloring to the stream.

The hum of the bee is heard,
But the breeze is faint and low,
And naught but the butterfly's wings are stirr'd,
As from leaf to leaf they go.

The shady evening hour,
It is a mightier far than all,
For its spell o'er the heart of man hath power
Bright visions to recall.

The features of the dead—
All that the souls enshrined—
The tones of the lov'd, that have long since fled,
Leaving a waste behind.

These then o'er his spirit come,
That have slept through the busy day,
When the bird is at rest, they haunt their home,
And never, never stray.

Yet joy, deep joy, for thee,
Thou evening hour of mirth,
When the weary one's welcomed, with laugh and glee,
To his own beloved hearth.

While thy star doth shine above,
And we dwell amidst the free
Last hours of the day—may peace and love
Forever gladden thee? B. B. B.

Kimbolton.

NEW METHOD OF HARVESTING GRAIN.—We have examined the drawing of a machine to gather grain as it stands in the field without cutting. It is called the Locomotive Thresher; intended to be moved by horse power, and, with the assistance of three men or boys of fifteen years of age, is calculated to go over ten acres of wheat or other grain per day, and gather say two hundred bushels, leaving the straw standing on the ground threshed as clean as is generally done in the ordinary way, thereby saving all the expense of harvesting; and by ploughing in or burning the straw, it is supposed the ground may be tilled *ad infinitum* without diminishing its fertility. Should this invention succeed, it will afford another inducement for farmers to inhabit and cultivate those beautiful prairies which abound in the far west. The ingenious inventor is Mr. John T. Vail, of La Porte, Indiana, formerly of this town.—[Rahway Advertiser.]

The Art of Brewing—Ox Mill used in the Breweries of Vienna. [From the London Mechanics' Magazine.]

Of the treatises published under the superintendence of the Useful Knowledge Society, one of the very best was that on the "Art of Brewing," by Mr. David Booth; but owing (we believe) to some misunderstanding between the author and the Society, it was left in an incomplete state—two parts only, instead of four, having received the Society's *imprimatur*. Mr. Booth has, under these circumstances, been induced to give Parts III. and IV. to the world through another medium.*

Part IV. is appropriated to brewing in foreign countries, and treats of the art as practised at Munich, Prague, Vienna, Berlin, Brussels, Louvaine, &c. Mr. Booth states, "that for the greater portion of the information in this chapter he is indebted to the manuscript and oral communications of two German brewers (from Vienna and Munich), who have been, and now are, visiting the principal towns of Europe, for the laudable purpose of acquiring information concerning their business."

From this part, being that which contains the most novel information, we shall make a few extracts.

And first, as to the *Bavarian beer*, which, when in prime condition, is "as bright as wine, and contains so much carbonic acid, that it is, in that respect, similar to champagne."

"The beer throughout all Bavaria is nearly of the same strength: usually between 3¼ and 3½ barrels to a quarter of malt. It is made wholly from malted barley and hops: and all sold at an uniform rate, which is fixed by law every year, according to the price of barley; so that there is but one kind of malt liquor for all classes, from the prince to the peasant. The rate for the present year is 16s. per barrel. The beer pays no duty; but the malt must be ground at a public mill, where an impost is levied, amounting to about half of its original value. The malt is screened before carrying it to the mill; and being generally cut with stones, it is also previously damped, in order to prevent the loss by dust. This operation is performed by sprinkling with a watering pan, at the same time frequently turning the heap till it has been well mixed with about two gallons of water to the quarter; and then leaving it to soak for nine or ten hours, that the moisture may penetrate to the centre of each grain. When the malt is to be bruised with rollers, this damping is not considered necessary."—p. 25.

* * * *

"The cellars in Munich are very deep under ground, so that the temperature never rises higher than between 7 and 8° of Reaumur, which is from 48 to 50° of Fahrenheit. In some of them ice is preserved through the summer. It is within such cellars that the beer is cleansed, into casks that lie on their side, bung uppermost.

* * * *

"After the beer has thus lain from eight to ten months, it is reckoned to be fit for use; and for that end it is drawn off into small casks as wanted, which are immediately carried out to the publican, and on the same day drank by his customers: so that every publican must be supplied with beer every day from the brewery."—pp. 27, 28.

* * * *

"Great care is requisite in having the store-casks very clean and *sweet* before filling them, lest they should communicate a disagreeable flavor to the beer. In two towns this is effected, after they are well washed, by smoking them with burning sulphur; but in the rest of Bavaria it is done by lining them with pitch. The following is the manner by which this is effected at Munich: The store-casks, in which the beer is cleansed, are previously *pitched* every time for summer beer, and once a year for winter beer. Pitching is practised in this way: one end of the cask is taken out, and two English pounds of pitch for every barrel of its contents, if the pitching has only to be renewed (but double that quantity, if for the first time,) is set fire to on the bottom of the cask, and made to burn until the whole has become perfectly fluid. This being done, the fire is extinguished, by putting in the head of the cask and driving the hoops close, and then the cask is rolled about, and turned in every direction, so that the pitch may be spread over every part of the inner surface which it will thereby cover with a crust one eighth of an inch thick. This crust is apt to crack and blister, which causes the necessity of re-pitching every season. The professed object of this manipulation is cleanliness; but it doubtless communicates a peculiar flavor to the beer, which, however, is liked, and consequently required, by the customers of those brewers."—p. 29.

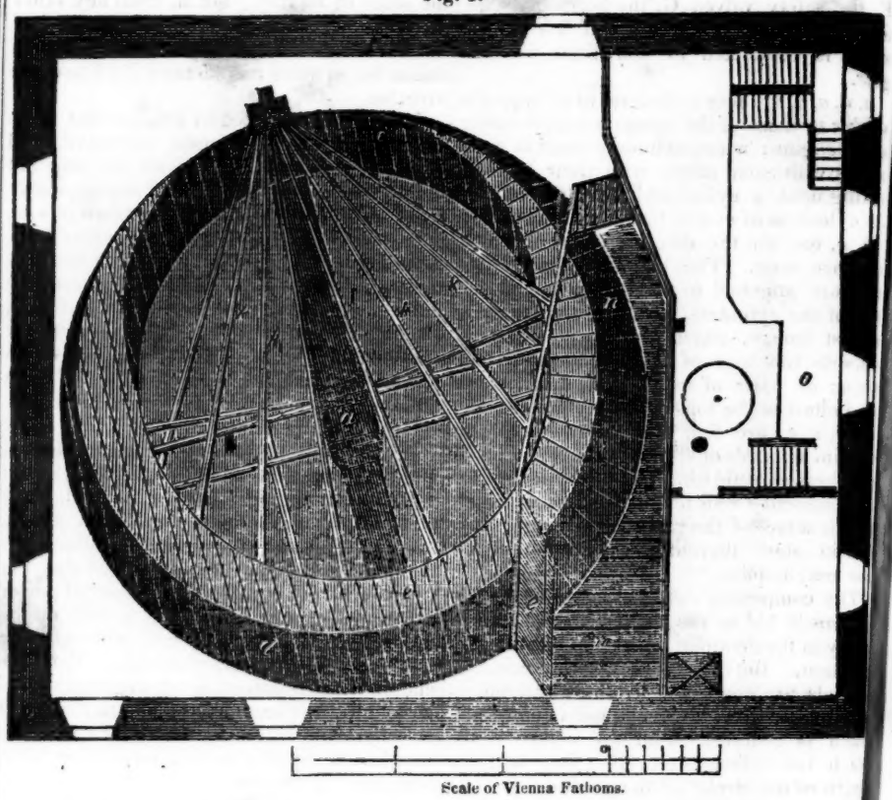
* * * *

"The brewers of this city (Augsburg) wash their coolers with great care, scrubbing them every week with Dutch rushes, the stalks of the *equisetum hyemale*; but notwithstanding this apparent regard to cleanliness, they have one practice which would this country, should not venture to imitate. Like the rest of their countrymen, they pitch their store-vats; but instead of waiting until the plaster is cold, they cleanse the fermented worts into the vats while the pitch is smoking and burning hot. It is this which gives the peculiar flavor by which the Augsburg beer is distinguished from that of the rest of Bavaria."—p. 31.

The beer next in continental reputation to the Bavarian is that of Prague.

"The city of Prague has been famed for its breweries from time immemorial. They constitute the chief support of a great portion of its inhabitants; and the beer, next to that of Bavaria, is accounted to be the best in Germany. The mode of brewing is very similar to that which is practised at Munich. The brewers in the city draw

Fig. 1.



Scale of Vienna Fathoms.

* The Art of Brewing. Parts III. and IV. By David Booth. To which is added an Appendix concerning Burton Ale. London: F. J. Mason. 8vo., 1834, pp. 56.

Fig. 2.

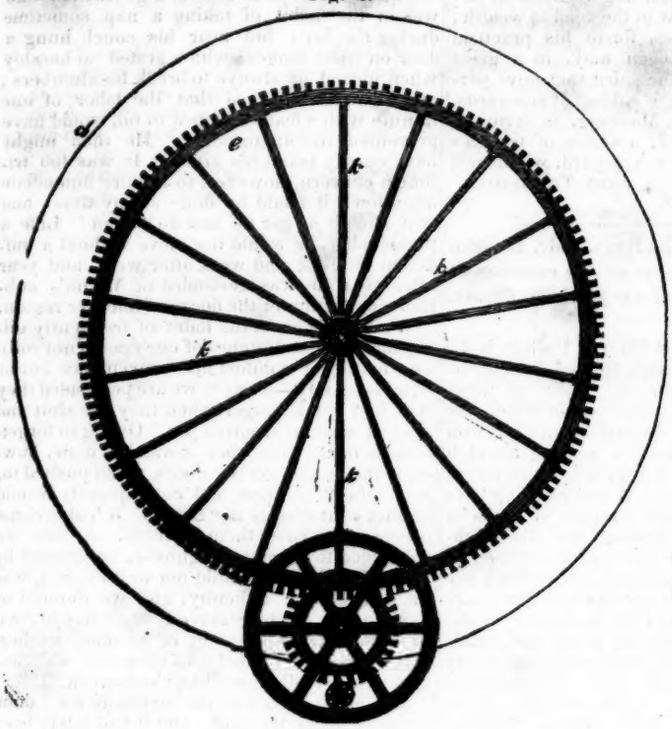
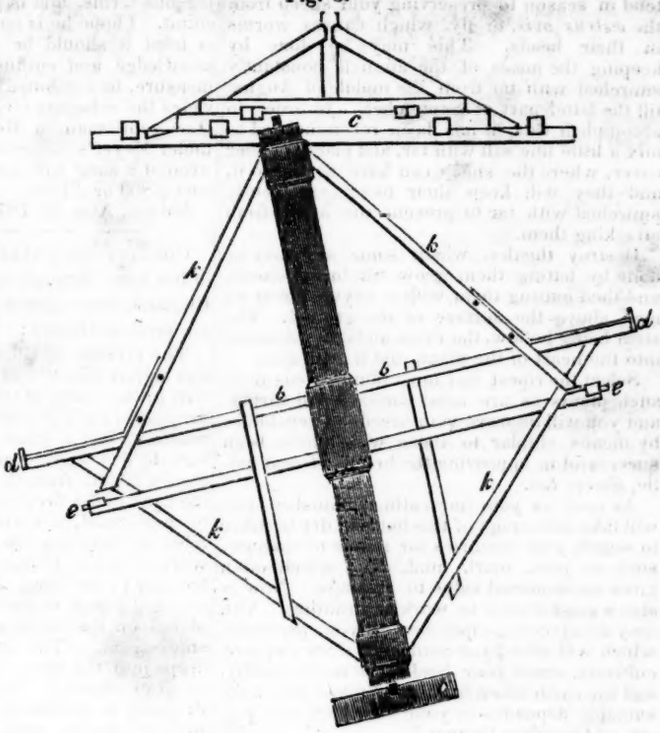


Fig. 3.



hundred gallons of beer from the quarter of malt, while those of the suburbs make ten to twelve gallons more; and, notwithstanding, the beer of the latter has a more agreeable taste than that of the former."—p. 31.

* * * *

"The beer vaults of Prague, of which every publican has one, are of the very best kind. The floor of each is covered with a deep mass of ice, which never melts, and upon this mass the beer is placed, when received fron the brewer. After it has lain from four to six weeks on its icy bed, it is fit for drinking, and is served out to the customers in that chilly state."—p. 33.

In treating of the method of brewing at Vienna, Mr. Booth gives the following description of a species of tread-mill, by means of which oxen are employed to drive the mill stones and rollers (for bruising the malt), which, though "little, if at all, known in this country," he thinks deserving of more extensive publicity, "believing that it would prove a cheap and convenient power in certain situations." We copy also, by permission of Mr. Booth, the engravings to which the description refers:

"Fig. 2 is a section, showing the position of the tread-wheel, *d d*, with respect to its angle of elevation as compared with the horizontal portion of the roof *p p*. The shaft *a*, at right angles, and fixed to the tread wheel, turns on pivots at the top and bottom, which are inserted into strong timber-work. The cog-wheel *c c*, parallel to the tread-wheel *d d*, and also fixed through its centre to the shaft *a*, communicates its motion to such other parts of the machinery as may be required. The wooden spurs *k k k k* sustain the tread-wheel, above and below, uniting a little above the cog-wheel, and fastened at their ends into the shaft. The rim *d d*, being that portion of the circumference of the wheel on which the ox treads, is further supported by the timbers *b b*.

"Fig. 3 is a view of the cog-wheel from above, showing its communication with the other parts of the machinery, such as the fly-wheel *f*, the crank *h*, &c. The spurs *k k*, &c. which preserve it steady in its place, are also seen.

"Fig. 1 is a ground plan of the whole building in which the tread-wheel stands. It is very high, and the main shaft is sunk in an excavation five feet deep in the ground-floor. The same letters of reference which mark the parts of figs. 2 and 3 also apply to this. A bar of boards, *l*, is fixed to prevent the ox from falling down into the pit below, should he accidentally get loose. The wooden gangway, *m*, enables him to get up from the stall below to the stage *n*, on which he walks without moving forward.

"We have abridged the description from the original, and consequently have left some of the letters of reference unnoticed; but we have doubtless said sufficient to be understood. When much power is wanted, the mill is sometimes supplied with three or four oxen together, in a team. The scale affixed to fig. 1 also applies to figs. 2 and 3. It is one of Vienna fathoms, which are something larger than English, 100 of the former making nearly 104 of the latter."—pp. 38–41.

It will doubtless be in the recollection of our readers, that the Burton ale brewers, moved by what was said of their peculiar modes of practice in the second part of this work of Mr. Booth's, applied to the Court of King's Bench for leave to file a criminal information against the publishers of the Useful Knowledge Society; and that, in consequence of Mr. (now Lord Chancellor) Brougham's afterwards stating to the Court, on the part of the Society, that they had, after due inquiry, satisfied themselves that there was no ground for imputing to the plaintiffs the use of any thing, save malt, hops, and water, in the manufacture of their beer, the rule to show cause was discharged. It appears, however, from the extract which follows, that Mr. Booth himself (incredible as it may seem) "was never consulted" with respect to these proceedings; and that had he been consulted, as he ought to have been, the records of the court might possibly have told a very different tale:

"On referring to Chapter X., Part II., of the Art of Brewing, which treats of Burton ale, it will be seen, that, in recommending the adoption of certain ingredients, the writer was careful not to impute the use of them to the licensed brewers; he well knew, that for them every article except malt and hops was illegal, and subjected them to severe penalties. But the question arose, how much was insinuated, and how far such a suspicion might raise a prejudice against their beer—a circumstance directly opposite to the intentions of the author.

"One of the affidavits gratuitously acknowledged the occasional use of flour and salt, to assist the fermentation of the inferior ale; and the jalap, of which it only was said that 'some recommend' for the same purpose (and the use of which is doubted at page 28, Part I.), may as well be left out of the supposed-accusatory list of ingredients. These, then, are reduced to

Salt of steel -	2 oz. to 20 barrels.
Honey - -	1 lb. per barrel.
Sulphate of lime	6 oz. per barrel.
Black resin -	1 oz. per barrel.

"With respect to the proceedings in this prosecution, the writer of the alleged libel, though his character was in some degree at stake, *was never consulted*. It appears, from what followed, that several chemists were employed to analyse the ale, as well as the water of which it was made; and, had he known of their appointment, he would have told those scientific gentlemen, that the honey and resin (granting that they had ever been introduced) *would certainly escape their detection*—that the salt of steel, not being by weight one part in sixty thousand, would possibly be too minute for discovery; and that the sulphate of lime alone would probably be found. The result would have justified the prediction."—pp. 52, 53.

Farmers' Work for August.—Please to attend in season to preserving your sheep from the *æstrus ovis*, or fly, which causes worms in their heads. This may be done by keeping the noses of the animals constantly smirched with tar from the middle of August till the latter part of September. In order to accomplish this, it has been recommended to mix a little fine salt with tar, and place it under cover, where the sheep can have access to it, and they will keep their noses sufficiently smirched with tar to prevent the insect from attacking them.

Destroy thistles, which some say may be done by letting them grow till in full bloom, and then cutting them with a scythe about an inch above the surface of the ground. The stem being hollow, the rains and dews descend into the heart of the plant, and it soon dies.

Select the ripest and most plump seeds from such plants as are most forward and thrifty, and you will improve your breeds of vegetables by means similar to those which have been successful in improving the breeds of neat cattle, sheep, &c.

As soon as your harvesting is finished, you will take advantage of this hot and dry weather to search your premises for mines of manure, such as peat, marl, mud, &c., which often gives unsuspected value to swamps. Now is also a good season to work at draining. You may drain certain marshes on your premises, which will afford you better soil than you now cultivate, cause your land to be more healthy, and the earth taken from the ditches will make valuable deposites in your cow-yard and pig-sty.—[Complete Farmer.]

Peach Orchards.—*Temperance.*—Ferguson, in his "Practical Notes on a Second Visit to Canada," bears the following testimony in favor of temperance:

We had a fine ride to-day, through a varied and well cultivated country, to Syracuse. The weather continues delightful, and the immense quantity of fruit in the orchards, especially the standard peaches, excited in our party much surprise. The trees are literally bending under their load, and the ground is covered with the fallen. Pigs and poultry, cows and calves, are every where devouring them at will. From the town of Camillus, I took my seat beside our driver, and found him a most intelligent amusing fellow. He told me that he had fourteen dollars per month, with board, and a *carte blanche* for liquor, but that he rarely tasted any thing stronger than cider; sometimes a drop of brandy in a very wet night. "A few years ago," says he, "Sir, no coachman considered himself qualified to drive a stage *unless he was drunk*; but there is a vast change now-a-days,"—and I believe it is the case, for I found an offer of a treat at the bar, on more than one occasion, civilly declined.

Natural Grasses.—Extract of a letter from a gentleman in Columbia, Penn., to H. Huxley & Co., dated June 30th, 1834.

"I may also inform you that every variety of seed from your establishment, with the addition of skinless oats, and three or four others from Mr. Fleet, vegetated, and are at this time in fine flourishing condition. The natural grasses, of which there were near twenty kinds, and the Chinese oats, were particularly acceptable."

Vineyards in Australia.—It was only the other day that I got your letter of 1829, by the hands of your correspondent, Mr. Frederick A. Meyer. I was out of town when he arrived, in 1830, and he went immediately up the country on an engagement of three years. Meyer had succeeded in establishing several vineyards, from which wine and raisins have been made. The colonists have now caught a fever for vineyards, and they are in course of preparation all over the country. Meyer has got some land on advantageous terms, and is planting on his own account. I hope he is now in the road to wealth; at least it should be so, for to his practical knowledge and enthusiasm may, in a great measure, be attributed the spirit that now pervades the colonists on the subject of vineyards. One gentleman, a Mr. Manning, is forming, under Meyer's direction, a series of terraces around a sand hill, for a vineyard, which will cost £800 or £1000. John Thompson.

Sidney, Aug. 10, 1833.

Cooking for College Boys.—Mr. Loudon, in his tour through some of the counties of England, thus speaks of the method of roasting meat at Oxford:

The kitchen of Christ Church College is 40 feet square and 40 feet high, lighted from a lantern in the centre of the roof. There are three fireplaces, each 20 feet wide; one of which, for roasting, has a grate formed of upright iron bars 4½ feet high, forming a grating about 9 inches distant from the brickwork which forms the back of the fireplace. When roasting is to be performed, a vertical stratum of coals is filled in between the grating and the brickwork, and six tiers of spits, each between 13 feet and 14 feet long, and each having on it six or eight joints, or twelve or thirteen fowls, are placed on the racks, and set in motion by the smoke-jack. The dripping from the whole drops into the same dripping-pan, and every separate article is basted with the combined dripping so produced. Thus, if ducks, geese, turkeys, fowls, pork, beef, mutton, venison, veal, and lamb, were all roasting at the same time, each of these articles would be basted with the combined fat of ducks, geese, turkeys, fowls, pork, beef, mutton, venison, veal, and lamb. On expressing our surprise at this to one of the under-cooks who attended us, she informed us that she believed none of the gentlemen knew of the practice; but that the two or three tutors or poorer students who remained during vacations, and who dined sometimes on one joint roasted by itself, expressed their satisfaction at its goodness. It is not a little instructive to reflect on this fact. Here are a number of young men of the first rank and wealth in the kingdom, who affect, and indeed have a right from their station in society, to be epicures, eating what would disgust the humblest mechanic or poorest tradesman. If these frequently dine on meat roasted along with other sorts in a close oven, they are still aware of the difference in flavor between such meat and that roasted by itself in a free current of air; but these noble epicures, who would, no doubt, be shocked beyond measure at the idea of eating meat which had been roasted or baked in a baker's oven, on account of its having been exposed to the exhalations of other kinds of meat supposed to be roasting in it at the same time, are yet faring every day on what is a great deal worse both in reality and idea. There is a curious old gridiron in the kitchen at Christ Church, 5 feet square, with iron wheels. It is said that formerly, when meat was dressed on it, a hole in the floor was filled with lighted charcoal, and, the gridiron being charged, it was wheeled over the fire, and afterwards wheeled off and on as it became requisite. The larders, and all the other subordinate arrangements of this kitchen, are of a very clumsy and imperfect description, badly lighted and ventilated, and altogether unfavorable to cleanliness. Properly ventilated roasting-ovens would not only roast every kind of meat with its proper flavor, as well as it is done before an open fire in a private gentleman's house, but they would save a great deal of fuel and labor. Let Mr. Sylvester, or some such engineer, be consulted, and we will venture to say that modern innovations on long-established forms will be adopted in the utensils and the arrangements of college cookery, whatever others suggested for the gardens and grounds may be rejected.

On Oiling Locks, Door Latches, &c.—We have somewhere read of a gentleman who was in the habit of taking a nap sometime during the day; but near his couch hung a door on rusty hinges, which grated so harshly when moved as always to break his slumbers; and it was remarked that the labor of one minute with a feather dipped in oil, would have prevented the disturbance. He then might have quietly taken his *siesta*. It was too trifling a concern, however, to require immediate attention: it could be done at any time; and why should he get up and do it then? Like a philosopher, he would not move without a sufficient motive; and week after week, and year after year, he was reminded of Milton's sublime conception of the doors of another region.

We have been in the habit of frequently oiling the locks and latches of our doors, not only as a matter of comfort and convenience but of strict economy—because we are persuaded they will last much longer when they are shut and opened without strain or jar. Owing to forgetfulness of the time when it was last done, however, the latches on two doors, when pushed to, had refused to rise, and consequently would neither shut closely nor fasten. It had become necessary to raise them by hand. At first we concluded that some roughness, occasioned by wearing, which we could not well explain, was the cause of the difficulty, and we thought of using a fine file to remove it; but happily we first tried the experiment of an oiled feather, and we were delighted to find every obstruction vanish: all moved like clock-work.

A wooden latch was the fastening for a door exposed to the weather; and it had lately been refitted so as to rise with great facility. A single shower of rain, however, put a stop to the movement; and it would not shut without the assistance of the hand. We therefore applied a few drops of olive oil—the spell was destroyed; and though it has rained much since that time, the latch rises and fastens without the least trouble.

Who of our readers have grating doors, or locks and latches that have become refractory? In such cases we should point to the oil flask.

Phosphorescent Lichens.—Several species, especially subcortalis, subterranea, and phosphorea, are occasionally phosphorescent, and more or less luminous in the dark; and hence they often give to the cellars and mines in which they grow an extraordinary and brilliant appearance. In the coal mines in the vicinity of Dresden they are said to be so abundant and so luminous, as even to dazzle the eye by the brilliant light that they afford. This light is increased by the warmth of the mines: so that, hanging in festoons and pendants from the roof of the various excavations, twisting round the pillars, and covering the walls, they are said, by their brightness, to give to the Dresden coal mines, in which they abound, the semblance of an enchanted palace. Mr. Erdman, the commissioner of mines, thus describes the appearance of the Rizomorphæ in one he visited: "I saw the luminous plants here in wonderful beauty; the impression produced by the spectacle I shall never forget. It appeared, on descending into the mine, as if we were entering an enchanted castle. The abundance of these plants was so great, that the roof, and the walls, and the pillars, were entirely covered with them, and the beautiful light they cast around almost dazzled the eye. The light they give out is like faint moonshine, so that two persons near each other could readily distinguish their bodies. The lights appear to be most considerable when the temperature of the mines is comparatively high."—[Burnett's Outlines of Botany.]

Pine Apple Cloth.—A beautiful specimen of fine cloth, made from the fibres of the leaves of the pine apple, from Manilla, resembling the finest linen cambric, was presented by Miss Eliza Schroeder, at the late Horticultural Exhibition in Baltimore.

On the Probable Results of Railroads, &c.

To the Editor of the American Railroad Journal, and Advocate of Internal Improvements.

Sir,—Has it never occurred to you that the capital vested in many railroads and canals is likely, if not exceedingly profitable at the commencement, to be eventually lost, from the roads and canals being superseded by others which may be made afterwards. The great and ultimate object of these improvements is to facilitate exchanges—to cheapen and expedite transportation to and from market—as, between the great coal region, or between the great agricultural west and the best market, whether Philadelphia, New-York, or Boston. Now, if it be assumed that transportation by railroads, or by some better roads, steam being the impelling power, shall supersede, where practicable, *all other modes of locomotion*,—and I do not suspect myself of being alone in the opinion that there is no extravagance in such an assumption, particularly when we notice the progress of things in Europe—it is no more than seasonable to begin to contemplate, and try to foresee and act upon the natural and inevitable results which must follow, and to lay them before the public, that they may be fairly in view, and have proper consideration in the mind of every man, or company, when coming to a determination in regard to any proposed improvement, both as respects its location and the manner in which it shall be completed, or the amount of capital which may be safely invested in it.

The climate and productions of Europe and North America are so nearly alike, that as the state of science and the arts in these quarters of the world continues to come nearer to an equality, it is fair to conclude that the exchanges of merchandize will hardly keep pace with the increasing population of America. Still, as the condition of men is improving, and society and nations are becoming more intimate and friendly in their relations, and curious in their inquiries, we may suppose that travel for gratification will greatly increase between the two—this is proved by the number and constant increase of fine ships as packets; and it fairly indicates, in connection with the extent to which steamboats are coming into use, and the long voyages which they occasionally make, that the time is not distant when the packet ships will be propelled by steam. No railroad can be laid across the Atlantic. It will be an object to have each of the two ports in Europe and America, from whence most of these ships may be expected to depart for the other, situated conveniently as it respects the interior parts of the country, and as near together as may be. The wearisomeness of a long sea voyage will render these considerations indispensable, and may lead to some changes not now much thought of.

But to leave this part of the subject for a while, and dwell more particularly on our own United States.

To attain the greatest rapidity of motion will always be an object of controlling importance, and therefore level regions will be greatly desirable for the location of the principal thoroughfares. The intercourse and exchanges between the north and the south must increase vastly beyond all precedent, and probably beyond all present anticipation of the most enthusiastic, for as speed of transportation increases, and the cost is reduced, the productions of each of the various climates will be vastly more consumed in the other climates; and the assumption is, that transportation by land will gradually take the place of water navigation, first, for persons travelling, and then for merchandize, and particularly on account of its expedition, safety, and regularity. This consideration is made stronger, from the fact that much of the interior, and the finest portion of North America, and that which will soon be the most productive and most densely settled, and of course require the greatest exchanges of this character, is already as near by land to the most important productions of southern climates, as it is to our eastern commercial ports. It is not too early, then, to begin the inquiry, where shall be our principal and leading roads? for it is plain that they are not yet located, and that they cannot be determined on judiciously without the most grand and enlarged views, and the most extensive and accurate surveys.

Without attempting to speak of details, which can of course be only determined by such surveys, it is pertinent, and may be profitable to notice, that the formation of the country and the condition and wants of the citizens, present and future, clearly indicate that the road already commenced at Albany must be continued without any regard to navigable waters, on the best and most level ground westward, indefinitely; That another road from Norfolk, or perhaps from Boston, must proceed southwardly over the level region, near the coast all the way, to some harbor, where a town is yet to spring up, near the south cape of East Florida, from whence there will be a busy steamboat intercourse with Havana; That a branch of this road will proceed, say from Savannah, to New-Orleans, and thence into Texas, and onward, onward; That another principal road will be from this new city on the Cape of Florida, into the great valley of the Mississippi. This brings me back to the thoughts which put me upon this essay, the errors likely to be made in the location of railroads. I perceive some are designed to communicate only between one inland water navigation and another. These may prosper long enough to refund their cost; but the day is not distant when they will have comparatively little value.

Finally, as your journal is likely to be extensively preserved for future reading and reference, and as I am an old man, and shall hardly trouble you many times more, I ask of you the further favor to record a few prophecies.

First, fresh water navigation, including that of the Mississippi and all its tributaries, will be discontinued, probably within twenty years.

Secondly, New-Orleans, and all cities in unhealthy situations, will greatly decline, and new cities and towns spring up in more healthful and advantageous situations, and that the queen of these will be somewhere at a point not yet thought of in the great valley.

And thirdly, that either Boston or Halifax is destined to take the sceptre from the highly favored city of the island.

And, to conclude, again I would most respectfully hint to the men of Boston (and for this I hope they will remember my children) two things—first, to spare no pains, nor grudge any capital, either in the location or construction of their westward and southward railroads; and secondly, to turn their attention to European steam packets on a large scale. I beg pardon: Boston folks need no hint from me on their own affairs. C. O.

Deep Creek, Sept. 5, 1833.

Action of Iodine on Starch.—M. Leroy, of Brussels, has found that water is requisite to the production of the blue color which is produced by the action of iodine on starch: in alcohol the iodine becomes merely of a dark brown color, and water causes the blue color to appear. M. Chevallier has also remarked that farinaceous substances mixed with starch, which are always moist, when subjected to the vapor of iodine, acquired a brown color, while potato starch became of a golden yellow merely. He concluded, from this circumstance, that iodine of starch is of a yellow color, and that this, by absorbing water, became blue hydrate, and he found that when this yellow compound was touched with a moistened tube, it became instantly blue.—[Ann. de Chim. Medicale.]

Laws of Nature.—There appears, remarks Sir Humphrey Davy, nothing more accidental than the sex of an infant, yet take any great city or any great province, and you will find that the relation of males and females is unalterable. Again, a part of the pure air of the atmosphere is continually consumed in combustion and respiration; living vegetables emit this principle during their growth; nothing appears more accidental than the proportion of vegetable to animal life on the surface of the earth, yet they are perfectly equivalent; and the sexes, like the constitution of the atmosphere, depend upon the same unerring intelligence.

Asthma.—We learn from an intelligent friend, who has long been afflicted with this most distressing complaint, that the fumes of burning paper, saturated with a solution of saltpetre, give him perfect relief. He keeps a quantity of the paper—which has been simply soaked in strong saltpetre water, and afterwards dried—constantly on hand, and on the recurrence of a paroxysm obtains almost instant relief from burning half a sheet or a sheet in his room. Others, who have been similarly affected, have tried it with a corresponding benefit. In no case has it been known to fail, so far as his information extends. We deem the testimony sufficient to warrant the publication of the prescription, which certainly has the merit of simplicity. If it shall prove generally efficacious, its value is beyond price. It can be readily tested. —[Newark Adv.]

Worthy Example of Economy.—Matthew Carey, speaking of his marriage, says, "My wife was about ten years younger than me. She was industrious, prudent and economical, and well calculated to save whatever I made. She had a large fund of good sense. We early formed a determination to indulge in no unnecessary expense, and to mount the ladder so slowly as to run no risk of having to descend. Happy, thrice happy, would it be for thousands and tens of thousands, if they adopted and persevered in this saving course. What masses of misery would it not prevent! Some idea may be formed of the fidelity with which we observed this rule, when I state, that at a time when I did business to the amount of forty or fifty thousand dollars per annum, I hesitated four or five years about changing my gig for a one horse four-wheel carriage—and nearly as long about purchasing a carriage and pair. And during the whole period of our marriage, I never, as far as I recollect, entered a tavern except on a jury or arbitration, or to see a customer, or at a public dinner, or on my travels—never in a single instance for the purpose of *drinking*."

Preserving Fruit Trees from Mice.—Mr. Fessenden: In your paper, No. 45 of the present volume, is an article on the "injury to fruit trees from mice;" written by *a* or taken from *the* Northern Farmer. The writer says he "has within a few years lost trees to the value of $500." He desires to be informed if there are "no means of destroying this mischievous race." Of the means of destroying mice, except on a small scale, I know nothing, but to preserve trees from their destruction is easy, and costs nothing—I say nothing, because there is nothing to be done, but what should be done, were there not a mouse in creation—viz.: while in the nursery, keep the ground clear of weeds, grass, and rubbish of every kind, by ploughing and hoeing frequently; when planted out never let a weed or spear of grass grow within three feet of them; prevent this by digging about them spring, summer, and autumn, leaving the earth about them smooth as possible, particularly in autumn. I have pursued this course with many trees, both in the nursery and planted out, with perfect success, but when I have neglected my trees (as I have in one or two cases,) and have not kept the ground clear of grass, &c. the mice have destroyed some of them. Yours with respect, Nath'l S. Bennett. Framingham, June 6th, 1834.—[New-England Farmer.]

A Market House is to be erected in Philadelphia—the roof metallic plates, supported by iron columns.

EARLY ONIONS.—William Little, Esq. of Hopkinton in this State, exhibited to us, on the 18th June last, an onion, the growth of the present season, the bulb of which was 14 inches in diameter, with a straight well formed top 18 inches in length. This gentleman informed us, that the bed from which this onion was taken was sowed on the first day of August last; and that it had not, in any way, been artificially protected through the winter.

This mode, if adopted by the market-gardener, would be of great advantage, in enabling him to furnish a much earlier supply of this valuable vegetable.—[Northern Farmer.]

CROWS DESTROY YOUNG FOWL.—While on a recent visit on Long Island, a farmer informed us that he had lost all his young turkies and ducks by crows. They would alight on the ground, seize their prey in their mouth, and fly away.

DESTROYING INSECTS BY CHAMOMILE FLOWERS.—In the Irish Gardner's Magazine it is said, not only that decoctions, or the leaves dried and powdered, of the common chamomile (Anthemis nobilis) will destroy insects, but that "nothing contributes so much to the health of a garden as a number of chamomile plants dispersed through it. No green-house or hot-house should be without chamomile in a green or in a dried state; either the stalks or flowers will answer. It is a singular fact, that if a plant is drooping and apparently dying, in nine cases out of ten, it will recover, if you place a plant of chamomile near it." Have any of your readers tried the chamomile in any way as a remedy for insects in England?—JOHN BROWN. Westerham, Kent, Feb. 1834.

HONESTY.—A boy, whose honesty is more to be recommended than his ingenuity, once carried some butter to a merchant in a country village to exchange for goods. The butter having a very beautiful appearance, and the merchant being desirous of procuring such for his own use, invited the boy to bring him all the butter his mother had to spare. 'I think,' said the boy, 'she can't spare any more, for she said she would not have spared this, only a *rat fell into the cream* and she did not like to use it herself.'

CRUELTY.—A person was arraigned before Wm. N. Green. Esq. in this village, on Saturday last, on charge of cruelly and inhumanly beating a yoke of oxen which were in his care. After an investigation, the magistrate not having final jurisdiction in such cases, he was ordered to give bail in the sum of $100, for his appearance to answer to said charge at the next term of the Court of Common Pleas.—[Worcester Spy.]

NEW CORN.—We had the pleasuer, on Wednesday the 2d July, says the Danvill, Va. Observer, af a repast upon roasting ears of the present crop. The corn was of good size and well filled. This kind is what is called the Little River Corn. If this kind were generally planted it might answer a very good purpose such a year as this.

DIFFUSION OF KNOWLEDGE.—A royal Sardinian edict was promulgated, so lately as 1825, which forbade every person from learning to read or write, who could not prove the possession of property above the value of fifteen hundred livres. To become a student, the possession of an income of the same sum is necessary.

MOUNT AUBURN.—This delightful place is daily visited by large numbers of ladies and gentlemen. The carriages and chaises of all, except proprietors of lots, are left at the gate while the parties promenade the grounds. Very great improvements have been made since last season, and others are in progress. The number of monuments erected, and on the ground, is very considerable, and they are seen through the trees in all directions; many of them are exceedingly neat and beautiful, and the grounds around them are laid out with much taste. In one lot, the new-made grave of a child is set round with young flowers, to bloom and die. The ponds have been neatly banked with grass, and flowering plants and shrubs set out around the borders.—[Bunker Hill Aurora.]

EMIGRANTS.—During the past seventeen years there have arrived at the port of Quebec, 69,175 passengers from Europe. The greatest number in one year was 18,231—the least number was 90, in 1824. The number arrived the present season, to the 3d of June, was, from England 2,884, Ireland 6,595, Scotland 1,348, lower ports 19—total, 10,846. Same period last year, 3,175.

The following are the number of passengers that have arrived at the port of New-York, since the first of January, 1834, to June 4th, as taken from the revenue books.

January,	420
February,	460
March,	1454
April,	3959
May,	9653
June,	809
Total,	16,753

[Poulson's Adv.]

A GOOD FLEECE.—Mr. George W. Leonard, of Talbot County, Md. sheared this spring, from *six sheep, forty-two pounds* of clean washed wool, making an average of seven pounds to each sheep. Three or four pounds we believe is a common average.—[Easton Gazette.]

WOLVES.—These destructive animals annually destroy numbers of horses, particularly during the winter season, when the latter get entangled in the snow; in which situation they become an easy prey to their light footed pursuers, ten or fifteen of which will often fasten on one animal, and with their long fangs in a few minutes separate the head from the body. If, however, the horses are not prevented from using their legs, they sometimes punish the enemy severely: as an instance of this, I saw one morning the bodies of two of our horses which had been killed the night before, and around were lying eight dead and maimed wolves; some with their brains scattered about, and others with their limbs and ribs broken by the hoofs of the furious animals in their vain attempts to escape from their sanguinary assailants —[Ross Cox's Adventures on the Columbia River.]

A MAMMOTH TROUT.—Gen. Cadwallader and lady, of Philadelphia, being on a visit to Bethlehem, Pa. Mr. G. H. Goudie presented to Mr. Ziegler, of the Eagle Hotel, one of the largest brook trout perhaps ever known in this country, which was served up in his best style, at a dinner last Monday, to the General and his Lady, and a party of ladies and gentlemen of Bethlehem, Pa. The trout measured 22 inches in length, 19 inches in circumference, and weighed 7 1-8 lbs. It was raised by Mr. Jacob Schneider, of the Lehigh Water Gap, who had kept it for the last six years in a trough in the second story of his house. We understand Mr. C. of Bethlehem has about 400 fine trout yet in his front house, measuring from 10 to 17 inches in length.—[Easton Sentinel.]

TO DESTROY CANADA THISTLES.—The most approved method appears to be to hoe them up as soon as they begin to expand their leaves. Frequent ploughing during one season has destroyed whole fields of them.

HEDGES AS A BARRIER AGAINST CATTLE.—I know none speedier or better than the Canadian poplar (P. monilifera,) as it forms, in a few years, an impenetrable living palisade against cattle. It should be planted eighteen inches apart, in double rows; and, when sufficiently grown, it may be headed down every alternate year. J. ROBERTSON.

Kilkenny, Jan. 6, 1834.

ICE AT BOTTOM OF RIVERS.—This subject has been considerably discussed in the papers of this country. In the following article, the explanation seems satisfactory.

"The Kennet," says Mr. Loudon, "is one of those rivers that exhibit the phenomenon of ice forming in the bottom, and we were informed here by the Earl of Craven's fisherman, that, in severe winters, the ice forms with such rapidity in those parts of the river that are shallow, and where, of course, the stream is rapid, that, in one night, a complete dam has been formed across the stream, of such a height as to throw the water over the adjoining banks. The water thus thrown over also freezes, and the consequence would be a complete inundation of the valley above, if the fishermen did not take effectual means to break up this dam. It is observed that, when the bottom of the river is frozen, one good effect is the result, and this is, that, when it thaws, the pieces of ice, which float up from the bottom, bring all the weeds with them; thus thoroughly cleaning the river. Observing a circular pond of stagnant water close by the margin of the Kennet, we asked the fisherman whether he had observed what took place in this pond when the river froze at the bottom. He perfectly understood the question, and answered that this pond, and all other stagnant water, froze at top. Some years ago, Mr. T. A. Knight made an attempt to explain the cause of running water freezing first at the bottom, in the *Transactions of the Royal Society;* and the same interesting subject has been discussed by various correspondents in our Mag. Hat. Hist., v. 91. 303. 395. 770.; but the phenomenon has only lately been explained satisfactorily in Jameson's Philosophical Journal. It is there shown that it proceeds from the motion of the water, mixing the frozen laminæ at top with the water below, till the whole mass becomes cooled down to the freezing point, when crystallisation takes place, beginning at the bottom and sides, as it does in the case of crystallisation of salts. Every gardener may prove the truth of this theory, if he will take the trouble of keeping the water of a small pond in motion, by stirring it while freezing. Possibly, if thorns were dragged through the water of canals full of weeds, by men on the banks of both sides, during the frosts of winter, when labor is cheap, the weeds, when a thaw should take place, might be separated from the soil at the bottom of the pond or canal more cheaply and effectually than they could by mowing. This might be tried on a small scale."

HUMIC ACID EVAPORATION.—*Mr. Fleet:* I am inclined to doubt the correctness of Professer Rennie's positions in pages 137 and 8, of the Farmer for May—and would refer to Professor Eaton, of the Rensselaer School, to examine and report

1st. What are the component parts of *Humic acid?* which seems is not sour to the taste.

2d. Is the sap in all cases pleasant to the taste?

3d. Does light come in strait lines always from the line, or is it sometimes refracted?

4th. Can beer be brewed in cold weather?

5th. If the temperature of the earth below the surface soil be 48°, and the air 48°, would any evaporation take place, or any hoar frost appear?

There are many other inquiries which will suggest themselves, on reading the communication as published in the Farmer, to each of which I should be pleased to have a rationale.

R. M. W.

June 28, 1834.

COAL CINDERS AS DRAINAGE FOR POTS.—Sir: Having seen an account in this Magazine (i. 224.) of a quantity of Chinese chrysanthemums being destroyed by having coal cinders placed in their pots for drainage, I resolved to try the effects of these cinders on other plants; and I am induced to send the result for your publication (if you think it worth a place,) from observing that cinders are recommended for pot draining, in a communication to a contemporary gardening periodical.

Early in May, 1833, I potted the following twenty species of plants, using cinders instead of potsherds. The plants, being duly marked, were placed among others in the collection; and they, consequently, received the same attention that the other plants did, which were drained in the usual manner. In the beginning of October, I examined the plants drained with coal cinders, and found them in the following state:

Numbers and Names of the Plants.	Dead.	Sickly.	Healthy.
4 Delphinium sinense	3	1	0
2 Cristium afrum	2	0	0
4 Silene maritima	2	1	1
2 Silene maritima flore pleno	2	0	0
2 Soldanella alpina	2	0	0
4 Papaver orientale	3	0	1
2 Lythrum alatum	0	0	2
2 Erythrolæna conspicua	2	0	0
2 Erigeron glabellus	1	1	0
2 purpureus	1	1	0
2 Phlox tardiflora *Penny* (longiflora *Sweet*)	2	0	0
2 crassifolia	1	1	0
4 subulata	0	1	3
2 Œnothera macrocarpa	2	0	0
2 missouriensis	2	0	0
2 acaulis	0	0	2
2 speciosa	0	2	0
2 Pyrethrum inodorum flore pleno	0	1	1
4 Asclepias bombacina	3	1	0
2 Clematis Viorna	0	0	2

It will be perceived that, out of fifty plants, twenty-eight died, and ten were so sickly that I threw them away: twelve only remained in a healthy state.

Cinders or coal ashes are also injurious to some plants, when the pots containing them are plunged in the coal ashes, as it will appear by the following fact. The varieties of Chrysanthemum sinense, which were cultivated in this garden in 1832, were plunged about 2 inches below the rims of their pots, at the base of a south wall, for flowering. After flowering (late in November) they were taken up with their roots hanging in all directions over the pots, and plunged in a two-light frame, one division of which was filled with cinder ashes, and the other with common garden soil. In March, 1833, the whole of those plunged in the ashes were pale and sickly, while those plunged in the soil were all robust and healthy; thus proving that coal ashes, as well as cinders, are detrimental to some plants, among which the Chinese chrysanthemums may probably take the lead.

If any of your correspondents would proceed in the prosecution of the inquiry of how far cinders may be used for draining, or what kinds of plants they injure, and what they do not, and would publish the results in your Magazine, the facts contributed could not, when they had become numerous, but avail the deduction of some useful general inference. In relation to this object, I contribute these.

I am, Sir, yours, &c.

H. TURNER.

Botanic Garden, Bury St. Edmunds.
Dec. 5, 1833.

STRENGTH OF CORDAGE.—The Boston Hemp Manufacturing Company have lately put up a machine, at their ropery on the Milldam, for the purpose of determining the strength of their cordage, spun in the common method by hand. A great number of experiments have been made by breaking ropes of various sizes and kinds on this machine, and the following exhibits the average result of these trials. The figures show the number of pounds required, *by each inch of the square of the girt of the rope to part it.*

Whale line spun by hand, best that could be produced,	776 *lbs.*
Whale line spun by machines,	994
Russia bolt rope, 1st quality,	723
Bolt rope of machine spun yarn,	915
Running rigging, 1st quality Russia,	442
Running rigging, American, spun by hand,	631
Running rigging of machine spun yarn,	717
Cotton line,	604
Coire rope,	215
Rope made of Manilla hemp,	610
Rope made of New Zealand flax, *Phormium Tenax*,	722
Mean of all hand spun hemp rope,	633
Mean of all machine spun hemp rope,	875

Showing the machine spun rope to be 36 per cent. stronger than the hand spun. If, however, we reject the trials on Russia cordage, which is very weak, the superiority of the machine spun ropes is reduced to 24 per cent. over all others.

In no instance whatever, was the trial on machine spun ropes made on selected specimens, but the pieces to be tested were taken from common coils as made for use. Indeed, it happened that the machine spun ropes, except the whale lines, were made of hemp inferior in quality to that usually wrought in the machines. The modulus of cohesion, of the strongest ropes in these experiments, is 30,700; or a rope of this strength could be let down into a pit 30,700 feet, or 5-8ths of a mile, before it would be broken by its own weight. A rod of iron can sustain itself, according to Mr. G. Rennie, only for a length of 19,700 feet.

On the 27th of March, by the politeness of Mr. Treadwell, we witnessed the operations of the machinery for preparing the hemp and spinning the yarn; and we were also shown the method of impregnating the ropes with tar, which is done uniformly throughout their whole thickness, the tar being kept at a temperature below the boiling point. The ropes made of these yarns have the appearance of being *stained* rather than *tarred.*

The superior strength of the ropes made from yarn spun by machinery appears to consist in this, that the fibres in the middle of the yarn are nearly of the same tension as those of the outside, whereas, in the yarn spun by hand, they are much more tense in the middle; and the short fibres being the first to give way, the whole stress is thrown upon the outside ones, which, being fewer in number, consequently cannot bear so much strain as a rope made up of fibres of equal tension.

The machine for trying the strength of ropes is so constructed as to try them fairly and accurately. The following experiments on the strength of three ropes were tried in our presence, and we have no doubt of their correctness.

No. 1. Whale line spun by hand—girt 2 inches; broke by 2240 pounds.

No. 2. Whale line made by Boston Hemp Company, spun by machinery—girt 1 ⅞th inches; broke by 3520 pounds.

No. 3. Running rigging made by the Boston Hemp Company—girt 2 ⅛th inches; broke by 3440 pounds.

As No. 2 was one seventh smaller than No. 1, we should add 502 pounds to the weight it actually bore, making 4022 pounds, for the weight it would have borne, if it had been of the same size as No. 1: consequently it was 64 per cent. stronger than No. 1. Again, No. 3 was one ninth larger than No. 1; we must therefore deduct from the weight it actually bore 382 pounds, leaving 3058 as the weight it would have borne, had it been as small as No. 1. It was therefore 25 per cent. stronger than No. 1.—[The Mechanic.]

VETCHES, &c., PLOUGHED IN.—Under this article may be included all sorts of green manure. Amongst the most active plants employed as manure, I have found the [wild species of the genus] Sinapis, ploughed in fresh in the bottom of turnip drills, at the rate of twenty tons per acre. The produce brought by auction £12, while the rest of the field, manured with twenty tons of farm-yard dung, brought only from £9 to £10 per acre. Other weeds, such as nettles, thistles, ragwort, &c., produce crops superior to farm-yard dung. Potato stems, fresh ploughed in, on clover lea for wheat, I have found to produce crops exceeding by two bolls per acre in quantity, with more proportionate weight of straw, the other parts of the same field manured with farm-yard dung, but otherwise under the same circumstances. The stems from three acres of good potatoes will manure an acre for wheat to much better purpose than fifteen tons of farm-yard dung, the usual quantity allowed in that part of the rotation; clover after wheat being the crop which generally precedes fallow. Under the head of "green manure," I may mention an experiment I this year made with peastraw converted into dung without the aid of cattle. Having something of that sort on hand, about the middle of last May, and being in want of some loads of manure to finish a potato field, I had the peas thrashed at the mill, and the straw and chaff carried to the side of the potato field, and made up like a large hot-bed, giving each layer of straw an ample watering. Fermentation soon commenced; and, by the fifth day, the mass was so far decomposed as to be easily filled into the carts. The effluvium in filling was almost intolerable. It was in this state laid in the bottom of the drills; the sets of potatoes were planted above, and the earth ploughed over the whole. Notwithstanding the dry nature of the ground, and the dry state of the weather in the summer months, the part of the field manured with decomposed pea-straw yielded a better return than where farm-yard dung was applied.—[Loudon.]

ARTIFICIAL LAWNS.—The finest English lawns, we are informed by Mr. Sinclair, who had more experience, as he had more science and skill, in this department, than perhaps any man of his time, with the exception of Mr. Lawson, are composed of the following grasses,—*Festuca* duriuscula, *Festuca* ovina, Agrostis capillaris and vulgaris, Avena flavescens, Anthoxanthum odoratum, Cynosurus cristatus, Poa pratensis, Lolium perenne var. tenuifolium, Trifolium repens and minus. If these seeds be sown in April, on a soil thoroughly drained, well pulverised, and properly consolidated by the roller previously to sowing, they will produce a beautiful lawn in two months; and by frequent mowing, in the course of a year, it will be undistinguishable from one of old turf.

A Compound Reciprocating Rotary Steam Engine, and an Improved Boiler, invented by SIMON FAIRMAN, *of Lansingburgh, New-York.* [From the Mechanics' Magazine and Register of Inventions and Improvements.]

This engine and boiler may be used separately, or the two together, as may be most convenient; the engine may be connected with any other boiler, and the boiler with any other engine.

This invention presents to the public, in a fair and practical form, the long-sought *desideratum* of a steam engine producing a rotary motion, without undue complication and liability to disorder; without the inconvenience of fly wheels and cranks; and giving the full power of steam without being subject to the constant loss of impetus by the action and re-action of heavy masses of metal.

It will be easily discovered, by examining the drawing, that this engine and boiler, when connected together, will occupy but a very small portion of the space required by the engines and boilers of the same power in common use, and that the weight of both engine and boiler are equally reduced; and as the cost, especially of the engine, is also reduced, at least in the proportion to its size and weight, it follows of course that, in all cases where a rotary power is wanted, it must be entitled to a preference equal to all those savings and conveniences, and for all locomotive purposes, still much greater.

And it must be no less obvious, on inspecting the plan of the boiler, that, besides its compactness, it is capable of producing a given quantity of steam with less fuel than is required for the boilers now in use.

As in the annexed drawing the engine and boiler are connected together; and, as to communicate an idea of the boiler, it was necessary to give a sectional view, showing the form of the inside, the description will require a kind of mixed reference alternately from one drawing to the other.

A, figure 1, represents the boiler entire, the inside of which is explained by figure 2. The furnace door is shown in figure 1, through which the fuel is inserted into the furnace, *b*, figure 2. The water is contained in three concentric double hollow cylinders, numbered in figure 1,—1, 2, 3. It is received from the supply pump, E, figure 1, into the outer cylinder, No. 1, and passes thence through bent tubes, *a*, *a*, into the inner cylinder, No. 3, which forms the furnace, from which it passes through the tubes, *c*, *c*, figure 2, into the centre pan at the top, *d*, which pan is connected with the middle cylinder, No. 2, from which enclosure and pan it goes through the upright or main conductor, D, figure 1, to the engine.

The fire goes from the furnace, *b*, and the top of the inner cylinder, thence down between that and No. 2, and, passing under No. 2, goes up between that and No. 1, and out through the small pipe, B, figure 1; and, when necessary, the draught is accelerated by a blower in the cylinder, *n*. The bottom of the furnace has a grate and ash pan, which need no description.

The spaces between the double cylinders, and in the centre pan, in which the water and steam are contained, are shaded in the sectional view, and the furnace and spars between the cylinders through which the fire passes are left white.

C, figure 1, represents the water tank;

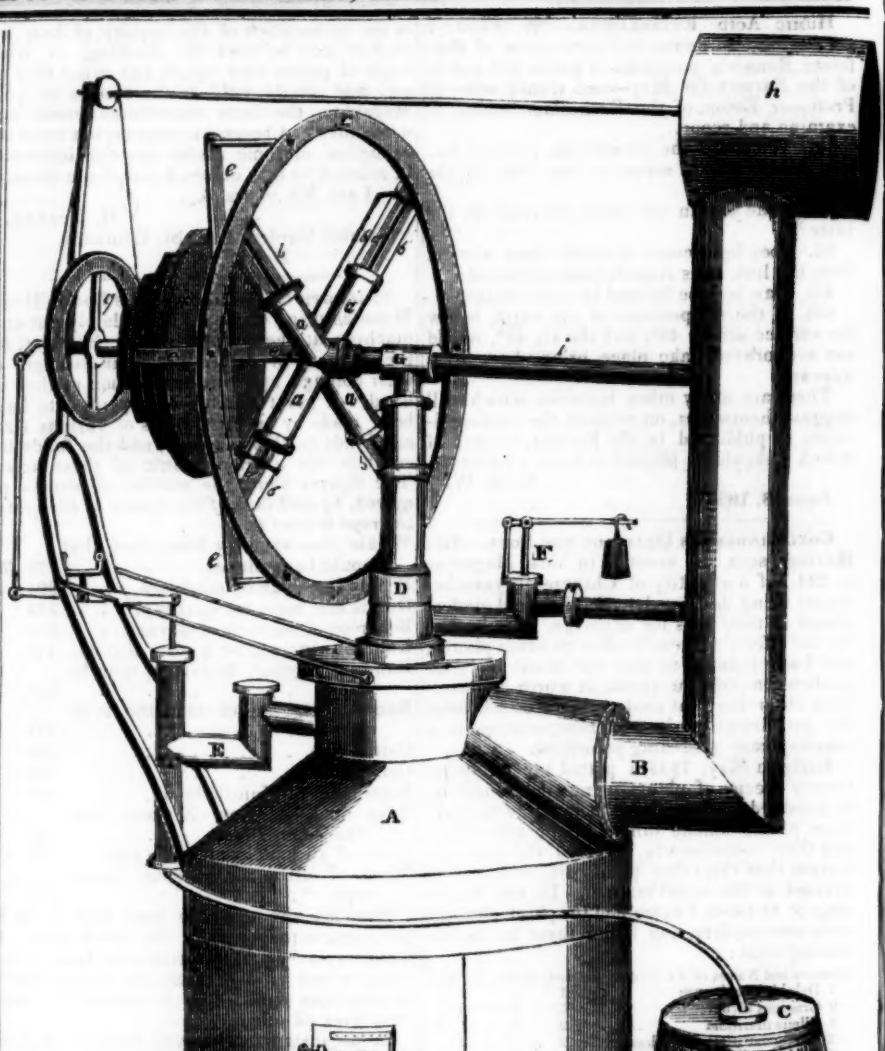
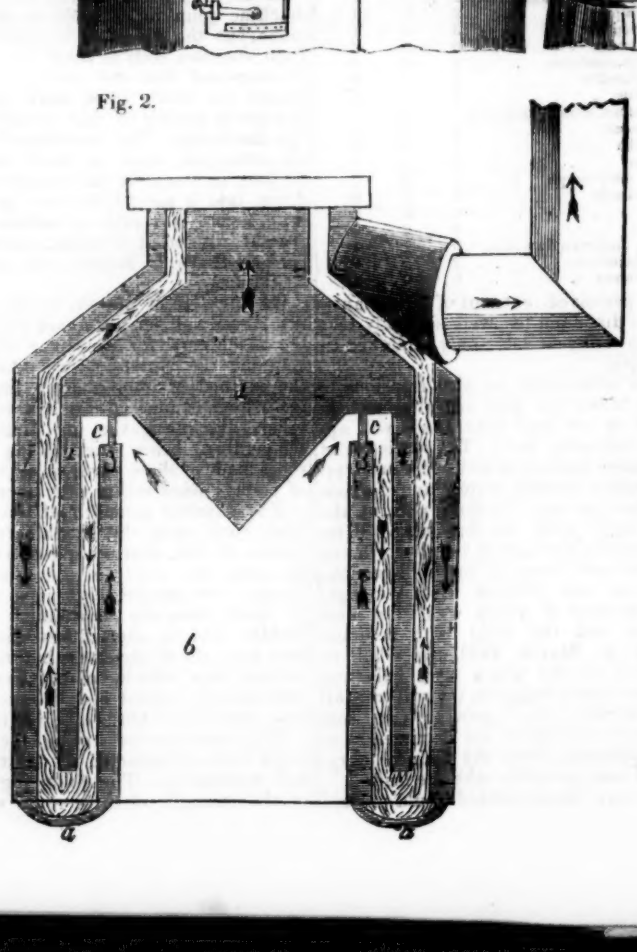


Fig. 2.



F, the safety valve; G, the horizontal pipe forming part of axis, through which the steam is conducted to and from the engine.

a, a, a, a, are four cylinders, in all respects similar to those of the common reciprocating steam engine; which cylinders stand at right angles with each other, with their bottoms resting upon a cylindrical hub, or centre; the cylinders of course forming a cross.

b, b, &c. are the slide rods, part of which only are seen. The bottoms of the slide rods are attached to the flanges round the tops of the cylinders, and their tops to a rim of cast iron, *c*, which rim also steadies and supports the tops of the cylinders by four straps, or parts of arms, *d, d, d, d*, which are bolted to the tops of the cylinders.

e, e, e, e, are four arms, connected with said rim by studs of sufficient length to leave room between said arms and the cylinders for the connecting rods to revolve, and to which arms is attached the main or driving pulley, *f*, or in place thereof a cog-wheel, as the case may require.

The connecting rods and cross-heads being mostly hid in the representation, are so nearly in the common form as to need no description. But the feet of the said connecting rods are connected together by a moveable joint, so as to revolve round a centre-pin, which is removed from the centre round which the cylinders revolve, just half the length of the stroke of the pistons.

The steam is conducted through a hole lengthwise in the main axis G, and out through a hole in the side thereof into the bottom of each cylinder successively, as they revolve.

On the side of each cylinder is a tube, passing from the bottom to the top, and also connected at the bottom with that which lets the steam into the bottom of the opposite cylinder, so that when the steam is let into the bottom of one cylinder it enters the top of the one opposite; and as the feet of the connecting rods revolve round a centre at some distance from the centre of the main axis, as the pistons act and re-act, the cylinders must of course revolve round the axis; and when each cylinder has passed round to the opposite side from whence it filled, the steam escapes through a hole on the opposite side of the axis into a hole lengthwise of the axis, and parallel to the one by which it entered, and goes off through the discharge pipe *i*.

Mr. F. will engage to construct an engine and boiler of fifty horse power, of strong and permanent workmanship, which (both engine and boiler) shall stand on a circle of six feet diameter, and will not vary much in weight from three tons. And operating with a steady rotary impulse and without any jar, its operation will be much pleasanter in steamboats, and also prevent the injury done to the boats by the constant racking motion of the engines now in use.

This engine and boiler will be in operation in a few days at 246 Water street, New-York.

Since the above was in type, we have received the following from Mr. Fairman:

To the Editor of the Mechanics' Magazine:

SIR,—However I may be reduced, by the misfortune, or rather the folly, of having undertaken to invent useful mechanical improvements, my pride is not so far overcome as to be willing to ask any services on the score of charity; but if, from any other motive, you should see fit to give this a place in your Magazine, I wish you better remuneration for so doing than to meet the fate of an inventor.

I had long been led to believe that a *rotary* steam engine, simple, operative, and sure in its construction, with an efficient boiler, both so compact, and consequently light, as not to overburthen their own power, and peculiarly adapted to locomotive purposes, was a desideratum for which the enlighted public would liberally reward the inventor, if such an inventor could be found. I had good authority for so believing. Many respectable writers on the subject of steam power, have noticed the importance of such an invention, but all I have seen have considered it impracticable.

Mr. Nicholson, in his Operative Mechanic, (Philadelphia edition, page 206,) says: "All steam engines, as yet noticed, have their action by the movement of a piston, in a cylinder, and act by what is called a reciprocating motion. In engines of this description a very considerable degree of power is expended in arresting the motion of the different working parts, and putting them into action in a contrary course. This has claimed much attention of engineers, and many attempts have been made to construct an engine in which the action of the steam should operate in a continuous manner, without bringing the parts to a state of rest."

Again he remarks, (page 213,) "The reciprocating motion in steam engines is a loss of power, which cannot be denied, for the momentum of the beam and other parts, passing in one direction, have suddenly to be arrested and moved in the opposite direction, which produces a loss of power.

"Rotary action has been sought, therefore, with propriety, but has not yet been attained with advantage."

Since Mr. Nicholson wrote the foregoing, the importance of locomotive steam powers has nearly doubled, and yet I have known of no attempt which was likely to succeed in effecting the desired object.

With these views of the subject, and believing, or at least hoping, it was practicable, I undertook, and have no hesitation in stating, that I have effected all that the subject required. I have constructed an engine and boiler as little liable to disorder, and as easily kept in repair, as any other, and, I believe, with at least double the power, in proportion both to the cost and weight, of any which has come to my knowledge.

But my want of pecuniary means compelled me to let the engine and boiler which formed the first experiment, and which could not be expected to be perfect, go out of my control, and be placed where, by awkward management, if it be not condemned, it will discredit rather than benefit the invention. No man of judgment would expect perfection in a first experiment; but fortunately there was no mistake perceived in the engine, and but for a slight miscalculation in the boiler, I would not wish my reputation to stand, as an inventor, on a better foundation.

I cannot now invest the necessary sum in materials to exhibit my invention to the public, but if any gentleman or company interested in procuring the best locomotive engine and boiler, after due examination of my plan, will furnish materials, I will hazard all the labor of constructing them at short notice, and will guarantee, as far as my labor goes, that they shall not vary essentially from the following calculations:

A boiler, which shall expose 160 feet of heating surface to the water, and shall possess sufficient strength to work steam under 100 lbs. pressure to the inch above the atmosphere, and which, of course, must produce a sufficiency of steam for a fifteen or sixteen horse power; an engine with 4 cylinders, 6 inches diameter, 18 inch stroke, making four double strokes at each revolution, and 50 to 60 revolutions per minute, working off from 78 to 94 feet of steam.

The whole engine, boiler and furnace, shall only occupy a circular space of three feet six inches diameter; and shall weigh less than a ton. A boiler and furnace sufficient for a fifty horse power shall stand on a circle six feet in diameter.

All which facts are respectfully submitted by the public's humble servant,

SIMON FAIRMAN.

P. S.—I have no wish nor reason to find any fault with the conduct of the gentleman in whose hands my steam engine is placed in New-York. I have found nothing ungentlemanly or unfair in his conduct. The only difficulty is, the engine was taken away prematurely. S. F.

[From the Portsmouth Journal.]

TO AN EARLY ROSE.

Say, beautiful mingling of water and dust,—
How?—where was thy fair form hid?
When the branch that now bears thee, in fondness up,
By the wintry blast was laid.
Wert thou there, in the bark of that wither'd thing?
Or down in the frozen earth?
Or did part of thee lay in a wreath of snow,
Which could boast of a cloudlet's birth?
Wherever—sweet child of the elements!
A lesson of truth thou dost bring;
For much that seems dross to the human eye,
May up into glory spring.
But thou hast been nought, save a simple bud,
Through stormy and sunny days—
Now thy tunic of green on thy stem is cast,
And thou art all fragrance and grace.
So I—if unsear'd by the world's bright sun,
And firm by its tempests driven—
Shall throw off my vestment of changing dust,
And bloom like thee, Rose, in Heaven.

S.

SUMMER HOURS.

Sweet is the early hour of morn,
With its gift of diamond dew,
When the sky-lark's eye from the earth is borne,
To gaze on the realms of blue.
Ah, dear to a wakening world
This time of the summer's day!
The banner of light is again unfurl'd,
Dispelling night's dreams away.
And the richer, glorious hour,
When the sun's o'erpowering beam
Hath added a glow to the palest flower—
A coloring to the stream.
The hum of the bee is heard,
But the breeze is faint and low,
And naught but the butterfly's wings are stirr'd,
As from leaf to leaf they go.
The shady evening hour,
It is a mightier far than all,
For its spell o'er the heart of man hath power
Bright visions to recall.
The features of the dead—
All that the souls enshrined—
The tones of the lov'd, that have long since fled,
Leaving a waste behind.
These then o'er his spirit come,
That have slept through the busy day,
When the bird is at rest, they haunt their home,
And never, never stray.
Yet joy, deep joy, for thee,
Thou evening hour of mirth,
When the weary one's welcomed, with laugh and glee,
To his own beloved hearth.
While thy star doth shine above,
And we dwell amidst the free
Last hours of the day—may peace and love
Forever gladden thee? B. B. B.

Kimbolton.

NEW METHOD OF HARVESTING GRAIN.—We have examined the drawing of a machine to gather grain as it stands in the field without cutting. It is called the Locomotive Thresher; intended to be moved by horse power, and, with the assistance of three men or boys of fifteen years of age, is calculated to go over ten acres of wheat or other grain per day, and gather say two hundred bushels, leaving the straw standing on the ground threshed as clean as is generally done in the ordinary way, thereby saving all the expense of harvesting; and by ploughing in or burning the straw, it is supposed the ground may be tilled *ad infinitum* without diminishing its fertility. Should this invention succeed, it will afford another inducement for farmers to inhabit and cultivate those beautiful prairies which abound in the far west. The ingenious inventor is Mr. John T. Vail, of La Porte, Indiana, formerly of this town.—[Rahway Advertiser.]

The Art of Brewing—Ox Mill used in the Breweries of Vienna. [From the London Mechanics' Magazine.]

Of the treatises published under the superintendence of the Useful Knowledge Society, one of the very best was that on the "Art of Brewing," by Mr. David Booth; but owing (we believe) to some misunderstanding between the author and the Society, it was left in an incomplete state—two parts only, instead of four, having received the Society's *imprimatur*. Mr. Booth has, under these circumstances, been induced to give Parts III. and IV. to the world through another medium.*

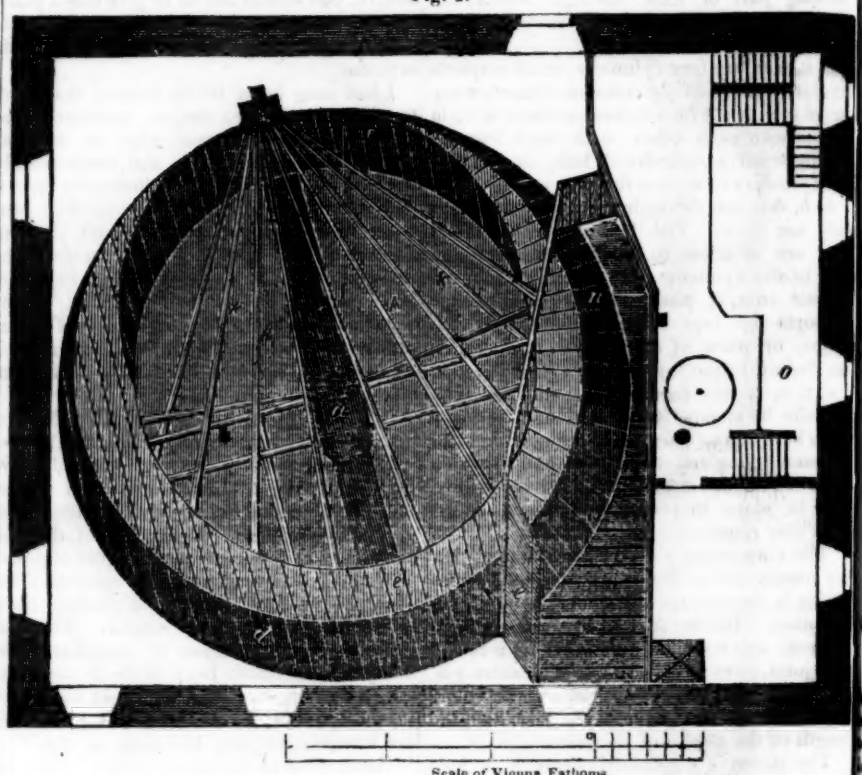
Part IV. is appropriated to brewing in foreign countries, and treats of the art as practised at Munich, Prague, Vienna, Berlin, Brussels, Louvaine, &c. Mr. Booth states, "that for the greater portion of the information in this chapter he is indebted to the manuscript and oral communications of two German brewers (from Vienna and Munich), who have been, and now are, visiting the principal towns of Europe, for the laudable purpose of acquiring information concerning their business."

From this part, being that which contains the most novel information, we shall make a few extracts.

And first, as to the *Bavarian beer*, which, when in prime condition, is "as bright as wine, and contains so much carbonic acid, that it is, in that respect, similar to champagne."

"The beer throughout all Bavaria is nearly of the same strength: usually between 3¼ and 3½ barrels to a quarter of malt. It is made wholly from malted barley and hops; and all sold at an uniform rate, which is fixed by law every year, according to the price of barley; so that there is but one kind of malt liquor for all classes, from the prince to the peasant. The rate for the present year is 16s. per barrel. The beer pays no duty; but the malt must be ground at a public mill, where an impost is levied, amounting to about half of its original value. The malt is screened before carrying it to the mill; and being generally cut with stones, it is also previously damped, in order to prevent the loss by dust. This operation is

Fig. 1.



Scale of Vienna Fathoms.

performed by sprinkling with a watering pan, at the same time frequently turning the heap till it has been well mixed with about two gallons of water to the quarter; and then leaving it to soak for nine or ten hours, that the moisture may penetrate to the centre of each grain. When the malt is to be bruised with rollers, this damping is not considered necessary."—p. 25.

* * * *

"The cellars in Munich are very deep under ground, so that the temperature never rises higher than between 7 and 8° of Reaumur, which is from 48 to 50° of Fahrenheit. In some of them ice is preserved through the summer. It is within such cellars that the beer is cleansed, into casks that lie on their side, bung uppermost.

* * * *

"After the beer has thus lain from eight to ten months, it is reckoned to be fit for use; and for that end it is drawn off into small casks as wanted, which are immediately carried out to the publican, and on the same day drank by his customers: so that every publican must be supplied with beer every day from the brewery."—pp. 27, 28.

* * * *

"Great care is requisite in having the store-casks very clean and *sweet* before filling them, lest they should communicate a disagreeable flavor to the beer. In two towns this is effected, after they are well washed, by smoking them with burning sulphur; but in the rest of Bavaria it is done by lining them with pitch. The following is the manner by which this is effected at Munich: The store-casks, in which the beer is cleansed, are previously *pitched* every time for summer beer, and once a year for winter beer. Pitching is practised in this way: one end of the cask is taken out, and two English pounds of pitch for every barrel of its contents, if the pitching has only to be renewed (but double that quantity, if for the first time,) is set fire to on the bottom of the cask, and made to burn until the whole has become perfectly fluid. This being done, the fire is extinguished, by putting in the head of the cask and driving the hoops close; and then the cask is rolled about, and turned in every direction, so that the pitch may be spread over every part of the inner surface, which it will thereby cover with a crust of one eighth of an inch thick. This crust is apt to crack and blister, which causes the necessity of re-pitching every season. The professed object of this manipulation is cleanliness; but it doubtless communicates a peculiar flavor to the beer, which, however, is liked, and consequently required, by the customers of those brewers."—p. 29.

* * * *

"The brewers of this city (Augsburg) wash their coolers with great care, scrubbing them every week with Dutch rushes—the stalks of the *equisetum hyemale*; but, notwithstanding this apparent regard to cleanliness, they have one practice which we, in this country, should not venture to imitate. Like the rest of their countrymen, they pitch their store-vats; but instead of waiting until the plaster is cold, they cleanse the fermented worts into the vats while the pitch is smoking and burning hot. It is this which gives the peculiar flavor by which the Augsburg beer is distinguished from that of all the rest of Bavaria."—p. 31.

The beer next in continental repute to the Bavarian is that of Prague.

"The city of Prague has been famed for its breweries from time immemorial. These constitute the chief support of a great proportion of its inhabitants; and the beer, next to that of Bavaria, is accounted to be the best in Germany. The mode of brewing is very similar to that which is practised at Munich. The brewers in the city draw one

* The Art of Brewing. Parts III. and IV. By David Booth. To which is added an Appendix concerning Burton Ale. London: F. J. Mason. 8vo., 1834, pp. 56.

Fig. 2.

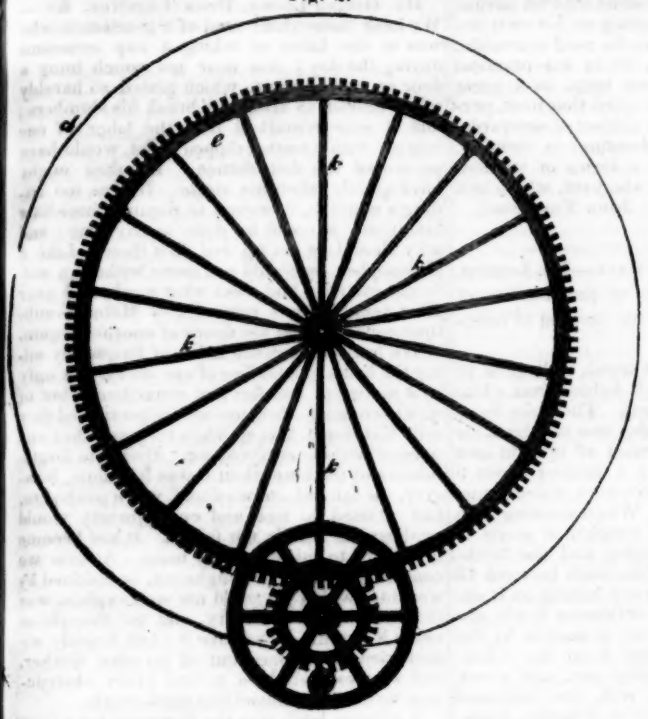
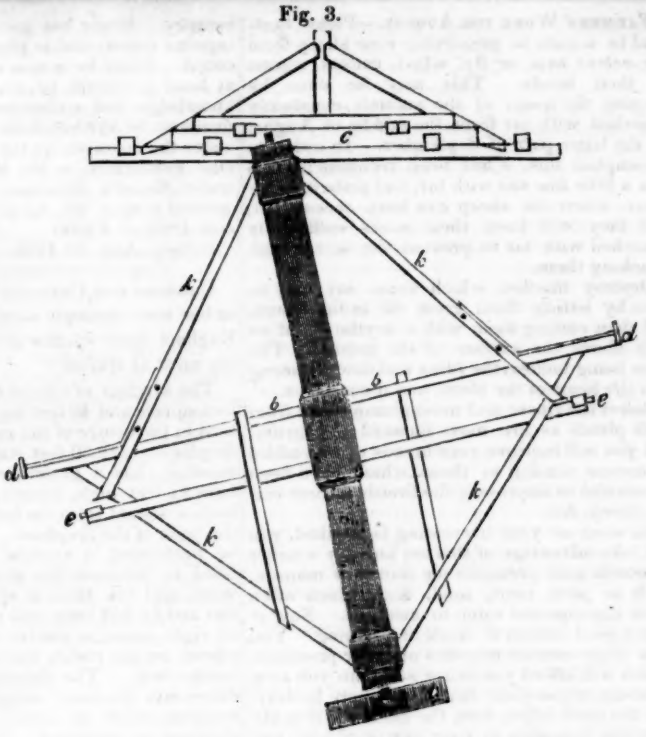


Fig. 3.



undred gallons of beer from the quarter of malt, while those of the suburbs make ten to twelve gallons more; and, notwithstanding, the beer of the latter has a more agreeable taste than that of the former."—p. 31.

* * * *

"The beer vaults of Prague, of which every publican has one, are of the very best kind. The floor of each is covered with a deep mass of ice, which never melts, and upon this mass the beer is placed, when received from the brewer. After it has lain from four to six weeks on its icy bed, it is fit for drinking, and is served out to the customers in that chilly state."—p. 33.

In treating of the method of brewing at Vienna, Mr. Booth gives the following description of a species of tread-mill, by means of which oxen are employed to drive the mill stones and rollers (for bruising the malt), which, though "little, if at all, known in this country," he thinks deserving of more extensive publicity, "believing that it would prove a cheap and convenient power in certain situations." We copy also, by permission of Mr. Booth, the engravings to which the description refers:

"Fig. 2 is a section, showing the position of the tread-wheel, *d d*, with respect to its angle of elevation as compared with the horizontal portion of the roof *p p*. The shaft *a*, at right angles, and fixed to the tread wheel, turns on pivots at the top and bottom, which are inserted into strong timber-work. The cog-wheel *c c*, parallel to the tread-wheel *d d*, and also fixed through its centre to the shaft *a*, communicates its motion to such other parts of the machinery as may be required. The wooden spurs *k k k k* sustain the tread-wheel, above and below, uniting a little above the cog-wheel, and fastened at their ends into the shaft. The rim *d d*, being that portion of the circumference of the wheel on which the ox treads, is further supported by the timbers *b b*.

"Fig. 3 is a view of the cog-wheel from above, showing its communication with the other parts of the machinery, such as the fly-wheel *f*, the crank *h*, &c. The spurs *k k*, &c. which preserve it steady in its place, are also seen.

"Fig. 1 is a ground plan of the whole building in which the tread-wheel stands. It is very high, and the main shaft is sunk in an excavation five feet deep in the ground-floor. The same letters of reference which mark the parts of figs. 2 and 3 also apply to this. A bar of boards, *l*, is fixed to prevent the ox from falling down into the pit below, should he accidentally get loose. The wooden gangway, *m*, enables him to get up from the stall below to the stage *n*, on which he walks without moving forward.

"We have abridged the description from the original, and consequently have left some of the letters of reference unnoticed; but we have doubtless said sufficient to be understood. When much power is wanted, the mill is sometimes supplied with three or four oxen together, in a team. The scale affixed to fig. 1 also applies to figs. 2 and 3. It is one of Vienna fathoms, which are something larger than English, 100 of the former making nearly 104 of the latter."—pp. 38–41.

It will doubtless be in the recollection of our readers, that the Burton ale brewers, moved by what was said of their peculiar modes of practice in the second part of this work of Mr. Booth's, applied to the Court of King's Bench for leave to file a criminal information against the publishers of the Useful Knowledge Society; and that, in consequence of Mr. (now Lord Chancellor) Brougham's afterwards stating to the Court, on the part of the Society, that they had, after due inquiry, satisfied themselves that there was no ground for imputing to the plaintiffs the use of any thing, save malt, hops, and water, in the manufacture of their beer, the rule to show cause was discharged. It appears, however, from the extract which follows, that Mr. Booth himself (incredible as it may seem) "was never consulted" with respect to these proceedings; and that had he been consulted, as he ought to have been, the records of the court might possibly have told a very different tale:

"On referring to Chapter X., Part II., of the Art of Brewing, which treats of Burton ale, it will be seen, that, in recommending the adoption of certain ingredients, the writer was careful not to impute the use of them to the licensed brewers; he well knew, that for them every article except malt and hops was illegal, and subjected them to severe penalties. But the question arose, how much was insinuated, and how far such a suspicion might raise a prejudice against their beer—a circumstance directly opposite to the intentions of the author.

"One of the affidavits gratuitously acknowledged the occasional use of flour and salt, to assist the fermentation of the inferior ale; and the jalap, of which it only was said that 'some recommend' for the same purpose (and the use of which is doubted at page 28, Part I.), may as well be left out of the supposed-accusatory list of ingredients. These, then, are reduced to

Salt of steel -	2 oz. to 20 barrels.
Honey - -	1 lb. per barrel.
Sulphate of lime	6 oz. per barrel.
Black resin -	1 oz. per barrel.

"With respect to the proceedings in this prosecution, the writer of the alleged libel, though his character was in some degree at stake, *was never consulted*. It appears, from what followed, that several chemists were employed to analyse the ale, as well as the water of which it was made; and, had he known of their appointment, he would have told those scientific gentlemen, that the honey and resin (granting that they had ever been introduced) *would certainly escape their detection*—that the salt of steel, not being by weight one part in sixty thousand, would possibly be too minute for discovery; and that the sulphate of lime alone would probably be found. The result would have justified the prediction."—pp. 52, 53.

PRINT IN BINDING

Farmers' Work for August.—Please to attend in season to preserving your sheep from the *æstrus ovis*, or fly, which causes worms in their heads. This may be done by keeping the noses of the animals constantly smirched with tar from the middle of August till the latter part of September. In order to accomplish this, it has been recommended to mix a little fine salt with tar, and place it under cover, where the sheep can have access to it, and they will keep their noses sufficiently smirched with tar to prevent the insect from attacking them.

Destroy thistles, which some say may be done by letting them grow till in full bloom, and then cutting them with a scythe about an inch above the surface of the ground. The stem being hollow, the rains and dews descend into the heart of the plant, and it soon dies.

Select the ripest and most plump seeds from such plants as are most forward and thrifty, and you will improve your breeds of vegetables by means similar to those which have been successful in improving the breeds of neat cattle, sheep, &c.

As soon as your harvesting is finished, you will take advantage of this hot and dry weather to search your premises for mines of manure, such as peat, marl, mud, &c., which often gives unsuspected value to swamps. Now is also a good season to work at draining. You may drain certain marshes on your premises, which will afford you better soil than you now cultivate, cause your land to be more healthy, and the earth taken from the ditches will make valuable deposites in your cow-yard and pig-sty.—[Complete Farmer.]

Peach Orchards.—*Temperance.*—Ferguson, in his "Practical Notes on a Second Visit to Canada," bears the following testimony in favor of temperance:

We had a fine ride to-day, through a varied and well cultivated country, to Syracuse. The weather continues delightful, and the immense quantity of fruit in the orchards, especially the standard peaches, excited in our party much surprise. The trees are literally bending under their load, and the ground is covered with the fallen. Pigs and poultry, cows and calves, are every where devouring them at will. From the town of Camillus, I took my seat beside our driver, and found him a most intelligent amusing fellow. He told me that he had fourteen dollars per month, with board, and a *carte blanche* for liquor, but that he rarely tasted any thing stronger than cider; sometimes a drop of brandy in a very wet night. "A few years ago," says he, "Sir, no coachman considered himself qualified to drive a stage *unless he was drunk*; but there is a vast change now-a-days," —and I believe it is the case, for I found an offer of a treat at the bar, on more than one occasion, civilly declined.

Natural Grasses.—Extract of a letter from a gentleman in Columbia, Penn., to H. Huxley & Co., dated June 30th, 1834.

"I may also inform you that every variety of seed from your establishment, with the addition of skinless oats, and three or four others from Mr. Fleet, vegetated, and are at this time in fine flourishing condition. The natural grasses, of which there were near twenty kinds, and the Chinese oats, were particularly acceptable."

Vineyards in Australia.—It was only the other day that I got your letter of 1829, by the hands of your correspondent, Mr. Frederick A. Meyer. I was out of town when he arrived, in 1830, and he went immediately up the country on an engagement of three years. Meyer had succeeded in establishing several vineyards, from which wine and raisins have been made. The colonists have now caught a fever for vineyards, and they are in course of preparation all over the country. Meyer has got some land on advantageous terms, and is planting on his own account. I hope he is now in the road to wealth; at least it should be so, for to his practical knowledge and enthusiasm may, in a great measure, be attributed the spirit that now pervades the colonists on the subject of vineyards. One gentleman, a Mr. Manning, is forming, under Meyer's direction, a series of terraces around a sand hill, for a vineyard, which will cost £800 or £1000. John Thompson.

Sidney, Aug. 10, 1833.

Cooking for College Boys.—Mr. Loudon, in his tour through some of the counties of England, thus speaks of the method of roasting meat at Oxford:

The kitchen of Christ Church College is 40 feet square and 40 feet high, lighted from a lantern in the centre of the roof. There are three fireplaces, each 20 feet wide; one of which, for roasting, has a grate formed of upright iron bars 4½ feet high, forming a grating about 9 inches distant from the brickwork which forms the back of the fireplace. When roasting is to be performed, a vertical stratum of coals is filled in between the grating and the brickwork, and six tiers of spits, each between 13 feet and 14 feet long, and each having on it six or eight joints, or twelve or thirteen fowls, are placed on the racks, and set in motion by the smoke-jack. The dripping from the whole drops into the same dripping-pan, and every separate article is basted with the combined dripping so produced. Thus, if ducks, geese, turkeys, fowls, pork, beef, mutton, venison, veal, and lamb, were all roasting at the same time, each of these articles would be basted with the combined fat of ducks, geese, turkeys, fowls, pork, beef, mutton, venison, veal, and lamb. On expressing our surprise at this to one of the under-cooks who attended us, she informed us that she believed none of the gentlemen knew of the practice; but that the two or three tutors or poorer students who remained during vacations, and who dined sometimes on one joint roasted by itself, expressed their satisfaction at its goodness. It is not a little instructive to reflect on this fact. Here are a number of young men of the first rank and wealth in the kingdom, who affect, and indeed have a right from their station in society, to be epicures, eating what would disgust the humblest mechanic or poorest tradesman. If these frequently dine on meat roasted along with other sorts in a close oven, they are still aware of the difference in flavor between such meat and that roasted by itself in a free current of air; but these noble epicures, who would, no doubt, be shocked beyond measure at the idea of eating meat which had been roasted or baked in a baker's oven, on account of its having been exposed to the exhalations of other kinds of meat supposed to be roasting in it at the same time, are yet faring every day on what is a great deal worse both in reality and idea. There is a curious old gridiron in the kitchen at Christ Church, 5 feet square, with iron wheels. It is said that formerly, when meat was dressed on it, a hole in the floor was filled with lighted charcoal, and, the gridiron being charged, it was wheeled over the fire, and afterwards wheeled off and on as it became requisite. The larders, and all the other subordinate arrangements of this kitchen, are of a very clumsy and imperfect description, badly lighted and ventilated, and altogether unfavorable to cleanliness. Properly ventilated roasting-ovens would not only roast every kind of meat with its proper flavor, as well as it is done before an open fire in a private gentleman's house, but they would save a great deal of fuel and labor. Let Mr. Sylvester, or some such engineer, be consulted, and we will venture to say that modern innovations on long-established forms will be adopted in the utensils and the arrangements of college cookery, whatever others suggested for the gardens and grounds may be rejected.

On Oiling Locks, Door Latches, &c.—We have somewhere read of a gentleman who was in the habit of taking a nap sometime during the day; but near his couch hung a door on rusty hinges, which grated so harshly when moved as always to break his slumbers; and it was remarked that the labor of one minute with a feather dipped in oil, would have prevented the disturbance. He then might have quietly taken his *siesta*. It was too trifling a concern, however, to require immediate attention: it could be done at any time; and why should he get up and do it then? Like a philosopher, he would not move without a sufficient motive; and week after week, and year after year, he was reminded of Milton's sublime conception of the doors of another region.

We have been in the habit of frequently oiling the locks and latches of our doors, not only as a matter of comfort and convenience but of strict economy—because we are persuaded they will last much longer when they are shut and opened without strain or jar. Owing to forgetfulness of the time when it was last done, however, the latches on two doors, when pushed to, had refused to rise, and consequently would neither shut closely nor fasten. It had become necessary to raise them by hand. At first we concluded that some roughness, occasioned by wearing, which we could not well explain, was the cause of the difficulty, and we thought of using a fine file to remove it; but happily we first tried the experiment of an oiled feather, and we were delighted to find every obstruction vanish: all moved like clock-work.

A wooden latch was the fastening for a door exposed to the weather; and it had lately been refitted so as to rise with great facility. A single shower of rain, however, put a stop to the movement; and it would not shut without the assistance of the hand. We therefore applied a few drops of olive oil—the spell was destroyed; and though it has rained much since that time, the latch rises and fastens without the least trouble.

Who of our readers have grating doors, or locks and latches that have become refractory? In such cases we should point to the oil flask.

Phosphorescent Lichens.—Several species, especially subcortalis, subterranea, and phosphorea, are occasionally phosphorescent, and more or less luminous in the dark; and hence they often give to the cellars and mines in which they grow an extraordinary and brilliant appearance. In the coal mines in the vicinity of Dresden they are said to be so abundant and so luminous, as even to dazzle the eye by the brilliant light that they afford. This light is increased by the warmth of the mines: so that, hanging in festoons and pendants from the roof of the various excavations, twisting round the pillars, and covering the walls, they are said, by their brightness, to give to the Dresden coal mines, in which they abound, the semblance of an enchanted palace. Mr. Erdman, the commissioner of mines, thus describes the appearance of the Rizomorphæ in one he visited: "I saw the luminous plants here in wonderful beauty; the impression produced by the spectacle I shall never forget. It appeared, on descending into the mine, as if we were entering an enchanted castle. The abundance of these plants was so great, that the roof, and the walls, and the pillars, were entirely covered with them, and the beautiful light they cast around almost dazzled the eye. The light they give out is like faint moonshine, so that two persons near each other could readily distinguish their bodies. The lights appear to be most considerable when the temperature of the mines is comparatively high." —[Burnett's Outlines of Botany.]

Pine Apple Cloth.—A beautiful specimen of fine cloth, made from the fibres of the leaves of the pine apple, from Manilla, resembling the finest linen cambric, was presented by Miss Eliza Schroeder, at the late Horticultural Exhibition in Baltimore.

On the Probable Results of Railroads, &c.

To the Editor of the American Railroad Journal, and Advocate of Internal Improvements.

Sir,—Has it never occurred to you that the capital vested in many railroads and canals is likely, if not exceedingly profitable at the commencement, to be eventually lost, from the roads and canals being superseded by others which may be made afterwards. The great and ultimate object of these improvements is to facilitate exchanges—to cheapen and expedite transportation to and from market—as, between the great coal region, or between the great agricultural west and the best market, whether Philadelphia, New-York, or Boston. Now, if it be assumed that transportation by railroads, or by some better roads, steam being the impelling power, shall supersede, where practicable, *all other modes of locomotion*,—and I do not suspect myself of being alone in the opinion that there is no extravagance in such an assumption, particularly when we notice the progress of things in Europe—it is no more than seasonable to begin to contemplate, and try to foresee and act upon the natural and inevitable results which must follow, and to lay them before the public, that they may be fairly in view, and have proper consideration in the mind of every man, or company, when coming to a determination in regard to any proposed improvement, both as respects its location and the manner in which it shall be completed, or the amount of capital which may be safely invested in it.

The climate and productions of Europe and North America are so nearly alike, that as the state of science and the arts in these quarters of the world continues to come nearer to an equality, it is fair to conclude that the exchanges of merchandize will hardly keep pace with the increasing population of America. Still, as the condition of men is improving, and society and nations are becoming more intimate and friendly in their relations, and curious in their inquiries, we may suppose that travel for gratification will greatly increase between the two—this is proved by the number and constant increase of fine ships as packets; and it fairly indicates, in connection with the extent to which steamboats are coming into use, and the long voyages which they occasionally make, that the time is not distant when the packet ships will be propelled by steam. No railroad can be laid across the Atlantic. It will be an object to have each of the two ports in Europe and America, from whence most of these ships may be expected to depart for the other, situated conveniently as it respects the interior parts of the country, and as near together as may be. The wearisomeness of a long sea voyage will render these considerations indispensable, and may lead to some changes not now much thought of.

But to leave this part of the subject for a while, and dwell more particularly on our own United States.

To attain the greatest rapidity of motion will always be an object of controlling importance, and therefore level regions will be greatly desirable for the location of the principal thoroughfares. The intercourse and exchanges between the north and the south must increase vastly beyond all precedent, and probably beyond all present anticipation of the most enthusiastic, for as speed of transportation increases, and the cost is reduced, the productions of each of the various climates will be vastly more consumed in the other climates; and the assumption is, that transportation by land will gradually take the place of water navigation, first, for persons travelling, and then for merchandize, and particularly on account of its expedition, safety, and regularity. This consideration is made stronger, from the fact that much of the interior, and the finest portion of North America, and that which will soon be the most productive and most densely settled, and of course require the greatest exchanges of this character, is already as near by land to the most important productions of southern climates, as it is to our eastern commercial ports. It is not too early, then, to begin the inquiry, where shall be our principal and leading roads? for it is plain that they are not yet located, and that they cannot be determined on judiciously without the most grand and enlarged views, and the most extensive and accurate surveys.

Without attempting to speak of details, which can of course be only determined by such surveys, it is pertinent, and may be profitable to notice, that the formation of the country and the condition and wants of the citizens, present and future, clearly indicate that the road already commenced at Albany must be continued without any regard to navigable waters, on the best and most level ground westward, indefinitely; That another road from Norfolk, or perhaps from Boston, must proceed southwardly over the level region, near the coast all the way, to some harbor, where a town is yet to spring up, near the south cape of East Florida, from whence there will be a busy steamboat intercourse with Havana; That a branch of this road will proceed, say from Savannah, to New-Orleans, and thence into Texas, and onward, onward; That another principal road will be from this new city on the Cape of Florida, into the great valley of the Mississippi. This brings me back to the thoughts which put me upon this essay, the errors likely to be made in the location of railroads. I perceive some are designed to communicate only between one inland water navigation and another. These may prosper long enough to refund their cost; but the day is not distant when they will have comparatively little value.

Finally, as your journal is likely to be extensively preserved for future reading and reference, and as I am an old man, and shall hardly trouble you many times more, I ask of you the further favor to record a few prophecies.

First, fresh water navigation, including that of the Mississippi and all its tributaries, will be discontinued, probably within twenty years.

Secondly, New-Orleans, and all cities in unhealthy situations, will greatly decline, and new cities and towns spring up in more healthful and advantageous situations, and that the queen of these will be somewhere at a point not yet thought of in the great valley.

And thirdly, that either Boston or Halifax is destined to take the sceptre from the highly favored city of the island.

And, to conclude, again I would most respectfully hint to the men of Boston (and for this I hope they will remember my children) two things—first, to spare no pains, nor grudge any capital, either in the location or construction of their westward and southward railroads; and secondly, to turn their attention to European steam packets on a large scale. I beg pardon: Boston folks need no hint from me on their own affairs. C. O.

Deep Creek, Sept. 5, 1833.

Action of Iodine on Starch.—M. Leroy, of Brussels, has found that water is requisite to the production of the blue color which is produced by the action of iodine on starch: in alcohol the iodine becomes merely of a dark brown color, and water causes the blue color to appear. M. Chevallier has also remarked that farinaceous substances mixed with starch, which are always moist, when subjected to the vapor of iodine, acquired a brown color, while potato starch became of a golden yellow merely. He concluded, from this circumstance, that iodine of starch is of a yellow color, and that this, by absorbing water, became blue hydrate, and he found that when this yellow compound was touched with a moistened tube, it became instantly blue.—[Ann. de Chim. Medicale.]

Laws of Nature.—There appears, remarks Sir Humphrey Davy, nothing more accidental than the sex of an infant, yet take any great city or any great province, and you will find that the relation of males and females is unalterable. Again, a part of the pure air of the atmosphere is continually consumed in combustion and respiration; living vegetables emit this principle during their growth; nothing appears more accidental than the proportion of vegetable to animal life on the surface of the earth, yet they are perfectly equivalent; and the sexes, like the constitution of the atmosphere, depend upon the same unerring intelligence.

Asthma.—We learn from an intelligent friend, who has long been afflicted with this most distressing complaint, that the fumes of burning paper, saturated with a solution of saltpetre, give him perfect relief. He keeps a quantity of the paper—which has been simply soaked in strong saltpetre water, and afterwards dried—constantly on hand, and on the recurrence of a paroxysm obtains almost instant relief from burning half a sheet or a sheet in his room. Others, who have been similarly affected, have tried it with a corresponding benefit. In no case has it been known to fail, so far as his information extends. We deem the testimony sufficient to warrant the publication of the prescription, which certainly has the merit of simplicity. If it shall prove generally efficacious, its value is beyond price. It can be readily tested. —[Newark Adv.]

Worthy Example of Economy.—Matthew Carey, speaking of his marriage, says, "My wife was about ten years younger than me. She was industrious, prudent and economical, and well calculated to save whatever I made. She had a large fund of good sense. We early formed a determination to indulge in no unnecessary expense, and to mount the ladder so slowly as to run no risk of having to descend. Happy, thrice happy, would it be for thousands and tens of thousands, if they adopted and persevered in this saving course. What masses of misery would it not prevent! Some idea may be formed of the fidelity with which we observed this rule, when I state, that at a time when I did business to the amount of forty or fifty thousand dollars per annum, I hesitated four or five years about changing my gig for a one horse four-wheel carriage—and nearly as long about purchasing a carriage and pair. And during the whole period of our marriage, I never, as far as I recollect, entered a tavern except on a jury or arbitration, or to see a customer, or at a public dinner, or on my travels—never in a single instance for the purpose of *drinking*."

Preserving Fruit Trees from Mice.—Mr. Fessenden: In your paper, No. 45 of the present volume, is an article on the "injury to fruit trees from mice;" written by *a* or taken from *the* Northern Farmer. The writer says he "has within a few years lost trees to the value of $500." He desires to be informed if there are "no means of destroying this mischievous race." Of the means of destroying mice, except on a small scale, I know nothing, but to preserve trees from their destruction is easy, and costs nothing—I say nothing, because there is nothing to be done, but what should be done, were there not a mouse in creation—viz.: while in the nursery, keep the ground clear of weeds, grass, and rubbish of every kind, by ploughing and hoeing frequently; when planted out never let a weed or spear of grass grow within three feet of them; prevent this by digging about them spring, summer, and autumn, leaving the earth about them smooth as possible, particularly in autumn. I have pursued this course with many trees, both in the nursery and planted out, with perfect success, but when I have neglected my trees (as I have in one or two cases,) and have not kept the ground clear of grass, &c. the mice have destroyed some of them. Yours with respect, Nath'l S. Bennett. Framingham, June 6th, 1834.—[New-England Farmer.]

A Market House is to be erected in Philadelphia—the roof metallic plates, supported by iron columns.

We have taken the liberty of extracting the following beautiful little poem from the second edition, lately published, of a volume entitled "Poetical Aspirations, by William Anderson." That a poet who can write such things should be so little known, is a strong signification of the difficulty which characterises the present age, with all its advantages, of attaining almost any degree of literary celebrity.—[London Farmer's Magazine.]

TO A WILD FLOWER.

In what delightful land,
Sweet scented flower, didst thou attain thy birth?
Thou art no offspring of the common earth,
By common breezes fann'd.

Full oft my gladden'd eye,
In pleasant glade or river's marge has traced,
(As if there planted by the hand of taste,)
Sweet flowers of every dye.

But never did I see
In mead, or mountain, or domestic bower,
'Mong many a lovely and delicious flower,
One half so fair as thee.

Thy beauty makes rejoice
My inmost heart. I know not how 'tis so—
Quick coming fancies thou dost make me know,
For fragrance is thy voice.

And still it comes to me,
In quiet night, and turmoil of the day,
Like memory of friends gone far away,
Or, haply, ceased to be.

Together we'll commune,
As lovers do, when, standing all apart,
No one o'erhears the whispers of their heart,
Save the all-silent moon.

Thy thoughts I can divine,
Although not uttered in vernacular words;
Thou me remind'st of songs of forest birds;
Of venerable wine;

Of Earth's fresh shrubs and roots;
Of Summer days, when men their thirsting slake
In the cool fountain, or the cooler lake,
While eating wood-grown fruits.

Thy leaves my memory tell
Of sights and scents, and sounds, that come again,
Like ocean's murmurs, when the balmy strain
Is echoed in its shell.

The meadows in their green,
Smooth-running waters in the far off ways,
The deep-voiced forest, where the hermit prays,
In thy fair face are seen.

Thy home is in the wild,
'Mong sylvan shades, near music-haunted springs,
Where peace dwells all apart from earthly things,
Like some secluded child.

The beauty of the sky,
The music of the woods, the love that stirs
Wherever Nature charms her worshippers,
Are all by thee brought nigh.

I shall not soon forget
What thou hast taught me in my solitude;
My feelings have acquired a taste of good,
Sweet flower! since first we met.

Thou bring'st unto the soul
A blessing and a peace, inspiring thought;
And dost the goodness and the power denote
Of Him who formed the whole.

LOCUSTS.—"There is a bird named *Samarmun* or *Samarmog*, to which the Arabs pay a degree of respect bordering on adoration. It is thought to be a native of Khorasan, and is ranked among the thrushes by Forskal, who calls it *Turdus seleucus*. It comes annually into Arabia in pursuit of the locusts, of which it destroys incredible numbers. The service done by it, in protecting vegetation from the desolating ravages of these insects, has given rise to several ridiculous and superstitious practices. The Syrian Arabs believe that it is attracted from Persia by means of water, which for this purpose they bring from a distance with great ceremony, and preserve in a stone reservoir on the top of the tower of a mosque at Mosul.

"In Arabia the locusts come invariably from the East, which makes the Arabs suppose they are produced by the water of the Persian Gulf. Nejed is particularly exposed to their ravages; and when they have destroyed the harvests, they penetrate by thousands into private buildings, and devour whatever they can find,—even the leather of the water vessels. The Bedouins of Sinai are frequently driven to despair by the multitudes of these vermin, which remain generally during a space of forty or fifty days, and then disappear for the rest of the season. They arrive towards the end of May, when the Pleiades are setting, which leads the natives to suppose that locusts entertain a dread for that constellation. A few visit the country annually; but the great flights take place every fourth or fifth year. All Arabs, except those of Sinai, wherever they reside, are accustomed to eat locusts. In almost every town there are shops where they are sold by measure. In preparing them, the cooks throw them alive into boiling water, with which a good deal of salt has been mixed. After a few minutes they are taken out, and dried in the sun; the head, feet, and wings, are then torn off; the bodies are cleansed from the salt and perfectly dried, after which they are put up into sacks or bags. Sometimes they are broiled in butter, and spread on the unleavened bread used at breakfast. The Jewish Arabs believe that the food of which the Israelites ate so abundantly in the desert was showers of locusts; and they laugh at our translators, who suppose that quails were rained where quails were never found."—[Crichton's History of Arabia.]

COFFEE.—"About the beginning of the 16th century it was brought by certain dervises of Yemen to Cairo, where its qualities recommended it to general use. But the innovation of drinking it in the mosques gave rise to a bitter controversy, which seemed to threaten the East with a new revolution. In the year 1511 it was publicly condemned at Mecca by an assembly of muftis, lawyers, and physicians, who declared it to be contrary to the law of the Prophet, and alike injurious to soul and body. The pulpits of Cairo resounded with the anathemas of the more orthodox divines; all the magazines of this "seditious berry" were laid in ashes; the saloons were shut, and their keepers pelted with the fragments of their broken pots and cups. This occurred in 1523; but by an order of Selim I. the decrees of the muftis were reversed; the tumults both in Egypt and Arabia were quashed; the drinking of coffee was pronounced not to be heretical; and two Persian doctors, who had declared it to be pernicious to the health, were hanged by order of the sultan. From Cairo this contested liquor passed to Damascus and Aleppo, and thence to Constantinople (in 1554), where it encountered and triumphed over the persecution of the dervises, who declaimed vehemently against the impiety of human beings eating *charcoal*, as they call the bean when roasted, which their Prophet had declared was not intended by God for food."

"The greatest care is taken of the powdered coffee, which is kept closely pressed down in a wooden box, and the quantity required for use is scraped from the surface with a wooden spoon. Two small pots are often used; in the one the water is boiled (generally mixed with the remains of the preceding meal); into the other is put the fresh coffee, and it is sometimes heated by standing near the fire before the boiling water is added. This latter mixture is then boiled two or three times; care being taken to pour a few drops of cold water upon it the last time, or to place over it a linen cloth dipped in cold water. After this process it is allowed to subside, and then emptied into the pot containing the boiling water. All classes use it without milk or sugar; people of rank drink it out of porcelain cups; the lower sort are content with coarse ware."—[Ib.]

CAT AND RABBITS.—On a journey recently, while stopping for a short time at the house of a gentleman in Orange, Vermont, we were somewhat interested and amused at seeing a lot of young rabbits nursed by a cat. The owner of the cat had destroyed two of her kittens, preserving only one. The night after she took to the woods, returning in the morning with two young rabbits, and the next night, repeating her visit, brought home a third, all of which she has adopted, and the kitten and three rabbits are thriving together, under the impartial and affectionate attention of Grimalkin.—[Portsmouth Journal.]

THE OAK OF THE VILLAGE.—We annex an extract from one of O. P. Q's. Letters to the London Spectator, announcing under this figure the death of Lafayette.

Lafayette.

PARIS, 21st MAY 1834.

To the Editor of the Spectator.

SIR:—Have you ever witnessed the destruction, the downfal, the death, of the OAK OF THE VILLAGE? Generations passed away, but *the Oak was in its place*. The village had a new church—new officers—new governors—new proprietors—new mansions—new owners—new institutions—and even new customs and habits: but the Oak *was ever in its place*. In the centre of the village-green, it spread its luxuriant and refreshing branches; whilst the young carolled and the gay danced beneath its loved shade. "*The Oak*" was the scene of many a festive hour, many a joyous jubilee, many a happy anniversary! Other oaks had been planted, and had been cut down; other trees had luxuriated and smiled on the villagers. There was but *one Oak* to the village—others were oaks, and others were trees, but this was THE OAK! If a cricket bat had to be played, it was under the Oak; if a wrestling-match had to be fought, it was under the Oak; if two lovers gave a rendezvous, it was at the Oak; if the officers of the parish wished to address the inhabitants, they met under the Oak. When the church was pulled down, and divine worship was chanted in the open air, the Oak at once sheltered the assembly from the rays of the sun and from the showers of heaven.—The candidates for *Senatorial honors* spoke to the electors of the spot, and the neighborhood, under the Oak. The little children were left to play under the Oak; and their mothers or their sisters confided them with a degree of confidence to his protection—for he was as the father of the village, and the household god of the villagers. In summer-time, the master of the charity school conducted his little flock on a Saturday to the shade of the Oak; and before they separated till the Monday, from their books and studies, they sang the evening hymn beneath his branches. In troublesome and warlike times, when invasion was spoken of, and foreign foes were feared, the "Loyal Volunteers" used to exercise and drill under "the Oak." And when even winter was most drear and the storm most pitiless, still the Oak raised his venerable head; and the thought that spring would return, and the tree and the green be once more gay and enlivening, softened the severity of the hour, and mitigated even the roughness of the blast. The oak was a constant benefactor and a never failing friend. Other friends might be faithless—other trees might perish or die—other shades might be destroyed by the interested or the powerful: but "the Oak" belonged to the village—and the hearts of all the village for all times belonged to him. But even the Oak was mortal—even the Oak was destined to perish: and in the midst of a horrible tempest, which desolated this once happy and once prosperous, but now sad and desponding village, the lightning of the skies descended upon the Oak—tore from it its branches—struck it even to its roots, and the Oak fell and was no more! So there was no more singing and no more dancing—no more carolling and no more meeting; and the green became deserted: and a simple monument marked the place where the venerable friend of the village had once stood; and it became deserted, lonely, and sad. And the first days of grief were as the days of weeping of an orphan who mourneth over the tomb of her mother, and as the grief of a widow who is suddenly bereft of her husband, and as the tears of a mother who weepeth over the loss of her only, her virtuous, her beloved son. And no eye was dry, and no cheek was rosy or healthy; for all felt the loss of the Oak to be the greatest of all losses: and the village was in mourning. And to the credit of that village be it said, the mourning was a long mourning, and the tears were oft-shed tears, and the grief was not of short duration, and "the Oak" is engraved on the hearts, and hangs up in the form of pictures and of paintings, in the cottage of every villager; and pieces of the branches, and of the trunk, and of the root, are handed down as precious relics from father to son, and from generation to generation. For it is still "THE OAK."

And what that Oak once was to the village, LAFAYETTE hath been TO THE PEOPLE: and not merely to the People of France, but of the whole world.